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OF THE

STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.

PART XXXIII, *April*, 1867.

I.—*Address by the Vice-President*, Sir ROBERT KANE, at the opening of the Twentieth Session.

[Read Tuesday, 27th November, 1866.]

WHEN acceding to the request of the Council of the Statistical Society to open this session by delivering the Annual Address, I did not conceal from myself the difficulties which that task presented to me. I was quite aware that the subjects with which the Society has hitherto been principally occupied, have only an indirect relation to the branches of science with which I have been more specially engaged, and that I could not presume either to comment upon the proceedings of the Society, or to indicate the path which our members should pursue during the coming session, with that authority which attached to the opinions of the eminent persons who in the late years have occupied the position which I now have the honor to fill. The gradual development and extension of the objects of this Society has, however, recently brought within its scope subjects of statistical and economic inquiry, of not less scientific interest than any included within our earlier limits, and certainly of not less practical importance to the well-being of the people. Having commenced originally with the object of collecting, arranging, and discussing purely statistical facts, and avoiding the thorny questions of economic science, which was then scarcely considered separable from party politics, it has been only by degrees that the principles of political economy were admitted to the position of scientific truths, even so far as regarded the laws of population, of capital, and of commercial interchange. It has required still longer time and still further discussion before it was allowed, that the distribution of wealth as well as its creation, that the

condition of a population as well as the laws of its diminution and increase, could be considered upon purely scientific grounds, and could be extricated from the mire of political discussion. Even that advance has been, however, made; and in the expanded objects of statistical and economic science, the relations of capital to labour, of rich to poor, of the governing to the governed, can be impartially examined from the one as well as from the other point of view; and thus, animating and directing the agencies of an enlightened philantrophy, may help to realize as a scientific law the noble sentiment of Bentham, that the true aim and object of society should be the greatest happiness of the greatest number of the people.

This remarkable development in the nature and objects of economic science has been fully represented in the proceedings of our Society for some time back, and our transactions will be found to contain many interesting papers suggesting or recording matters of social amelioration. A remarkable result of this new tendency of economic inquiry has been the establishment of the Social Science Congress, of which a very successful meeting took place in this city a few years back, and which in turn has given a still further expansion to the objects of this Society, which now embraces within its scope not merely Statistics and Political Economy, according to the older definition of those sciences, but includes also what is now understood by the name of the Social Sciences; in fact admitting as proper material for its labours almost every question affecting the material interests of society, the security of property, the health and education of the people—all, of course, treated upon purely scientific grounds, and independently of every personal or political consideration.

The scope of our Society has thus been extended far beyond its ancient bounds, and has necessitated a formal subdivision, which, although not strictly carried out, is yet as far as possible observed in arranging for the business of our meetings. Our objects are now declared to be the promotion of the study of Statistics, Jurisprudence, and Social and Economic Science, and those objects are arranged in three departments, to wit:—

1st. Jurisprudence and the Amendment of the Law, including the Punishment and Reformation of Criminals.

2nd. Social Science including Education, and Political Economy including the principles of trade and commerce.

3rd. Public Health and Sanitary Reform.

We have had, at our last anniversary meeting, the condition and prospects of the first of those three classes of subjects most ably and most eloquently discussed by Mr. Justice O'Hagan, who then occupied this chair. On the preceding anniversary, that second class of our objects which occupies itself with the more material interests of social life, was considered in relation to that question of such paramount gravity in this country—the tenure of land—by Judge Longfield, the person above all others the best qualified by position and experience to express an authoritative opinion on that difficult subject. It has therefore appeared to me most

beneficial, as well as most simple, that your attention should be called on this occasion to the third branch of our objects, to wit, that of Public Health, a subject which although but of recent introduction, is now recognised as of vast importance to the individual as well as to the state; and in regard to which, the nature of my own pursuits, having had some practical connexion with many of the subjects which it includes, I may feel myself enabled to appreciate more accurately what the Society has accomplished within that field, and to indicate with more confidence the direction in which, as I believe, the labours of our members may be most usefully directed.

The importance of enquiries into the sanitary condition of the people, and the necessity for provisions being made on the part of the state for the preservation of the public health, has until lately been recognised only on occasions of the threatened invasion of some plague or other violent epidemic, and the preventive measures which the science or rather the ignorance of the times could devise, consisted in an elaborately futile system of quarantine, and a form of destroying the contagious matter by fumigations, which had more resemblance to the magical ceremonies of an Eastern tale than to any real or scientific action. The true conditions upon which the maintainence of health depends, whether of individuals or of masses, were but very imperfectly known even to the best informed, and not at all to the common people: and it is a lamentable fact that the education still given even to the highest classes in our public schools and colleges, leaves the pupils but too often ignorant of the most elementary principles of physiological and chemical science; whilst the most valuable years of life are occupied with the minute details of Greek and Latin versification, a subject which to the great body of the learners can be but of very inferior importance. Within the last few years the necessity for a proper knowledge of sanitary laws, and the observance of sanitary conditions in the life of the people, has been recognised by the governing classes; and it is now generally understood that violent epidemics, such as that from which we are not as yet quite free, although creating great alarm and attracting universal attention by their rapidly destructive effects, yet, like the transitory though violent disturbances of our atmosphere, exercise but a subordinate influence on the real value of human life, or the true conditions of human happiness, as compared with the silent but continuous action of those preventible sources of disease which are every where and at all times in operation, and by which a much larger number of lives, that might have been saved to their families and to the state, are lost by ignorance and inertness. Under this stimulus, however, considerable progress has of late years been made in every department of Sanitary Science, and various legislative provisions have been devised to meet the more positive and prominent necessities of society. This increased attention to the subject has mainly sprung from those epidemics affecting both man and the lower animals, which have within the last few years assumed such national importance. This cause will, as I hope, prove temporary; the good

effect will, as we may trust, be permanent, and will be the origin of improved social arrangements better calculated to maintain the true conditions of health among the people.

The basis of all questions concerning the public health must be the rate of progress of the population, its increase in number, and the average value or duration of life. In regard to our population there is no doubt but that it continues to show a decided diminution, as the tide of emigration which still pours from our shores more than counterbalances the natural rate of increase, from the excess of births over deaths belonging to a normal state of population. Our system of registration of births, deaths, and marriages, is still of such recent introduction and is still so imperfectly observed in many districts, notwithstanding the exertions of Mr. Donnelly the Registrar-General and his assistants, that we cannot attempt to deduce absolute conclusions from our own returns; it is not probable, however, that the true value of life in this country differs sensibly from the average of Great Britain, and by applying the co-efficients obtained from the more matured returns of the sister kingdom we shall arrive at results in which I believe we may place confidence. Taking, therefore, the mean birth-rate at 1 in 31, the mean death-rate at 1 in 45, and the population of Ireland in September 1865, as 5,626,471, we find that the births were 181,499, the deaths amounted to 125,033, giving an excess of births which should have increased our numbers by 56,466, in September, 1866; but that within the twelve months there had emigrated 107,053 persons, being an excess of 10,352 over the number which had emigrated during the preceding year, and converting our natural and proper increase into a most unnatural decrease of 50,587, by the loss of that number of the industrious and energetic members of the labouring classes, leaving behind them a burthen upon the land—the idle, the imbecile, and the diseased. It is not within my province to refer otherwise to this stream in which the life-blood of the nation is annually poured forth, or to consider how it could be arrested or diverted. A considerable diminution in the rate of loss is shown by the returns of the last quarter of this year, and the hope may be suggested that its greatest intensity has passed away. Many members of our Society are well qualified to discuss this question, and I have no doubt but that during the coming session it will receive proper attention.

I have mentioned that in calculating the above numbers, I employed the values for the birth and death rates as obtained from the British returns, those being, as I believed, the most accurate. This merely arises from the more recent introduction of the system here, which renders it necessarily for some time incomplete. In every year greater exactness will be attained, and already we can trace in the returns of the present year, greater completeness than in those of the year preceding.

The value of life at birth, that is to say, the number of years which the life of any healthy individual of the community is likely to endure, is in these countries forty-one years. The great problem of civilization should be to increase the value of life, and to prolong that time during which the individual can be of service to himself,

to his family, and to the state. But to be of service, mere existence is not enough; a population of fever-stricken, consumptive, or imbecile individuals could not support a state or constitute a nation, and it is therefore the necessary condition for human progress and civilization that proper provision should be made for maintaining the population in a state of health, so far as such can be done by human means. To this end, several important legislative measures have been adopted of late years in the sister kingdom, and within the last few months, under the pressure of the alarm caused by the advent of the epidemic from which this country is not as yet quite free, we have obtained a consolidated and improved Sanitary Act for Ireland, organising under the directio n of the public authorities an admirable system of control and supervision, through which it may be hoped that those agencies, whether of commission or of omission, by which disease might be generated or conveyed, may be, if not absolutely removed, at least materially narrowed in their range of influence, and mitigated in their force. We are indebted to our able and energetic Honorary Secretary, Dr. Hancock, for an excellent report and digest of the enactments belonging to this subject.

The most indispensable requirements for the maintainance of health are personal and domestic cleanliness, full access of light, and proper supply of air. Without these conditions being fulfilled, a population will necessarily be short-lived, and even whilst living will be so deficient in vital force and energy as to fall rapidly under the influence of any miasmatic or contagious virus which may happen to be generated or introduced. This subject has been well-treated of by my friend Dr. Mapother, in his excellent Lectures on Hygiene, delivered at the Royal College of Surgeons, in the reports which he has made officially as Officer of health to the Municipal Council, and in papers which he has read before this Society. He has called special attention to the evils of overcrowding in the abodes of the poorer classes; to the entire violation of all sanitary laws in which their wretched existence pines away. In every large town the tendency to overcrowding of the poorer classes of the people arising from their natural instinct of association, from the necessity for living near their work, from their ignorance of the dangers to which they are exposed, and the indifference or dislike to improvement which that ignorance engenders, has always been one of the most powerful agents in the spread of contagious diseases. In Dublin, owing unfortunately to the decay of a large portion of the city, by which mansions, once the residences of the rich and great, have become the tenements of the miserably poor, the evils of overcrowding do not take precisely the same form as in the manufacturing towns of Great Britain, where the constantly growing numbers of of workmen accumulating within the same space has produced such bad results. Even in Dublin, however, and even in our provincial towns, Dr. Mapother has shown that tenements occupied by our working classes present some of the very worst features as to disease and filth that could occur, and it is fortunate that the lately increased powers which the legislature has conferred upon the civic

authorities will lead to the establishment of a standard of minimum accommodation, which must be provided in all tenement lodgings, under a direct and unavoidable penalty. By such means a great deal of this evil may be abated.

In the prevention of disease, therefore, so far as hygienic measures are concerned, you will observe that I place foremost those means which have for their object to elevate the standard of living, and to increase the vital force; to raise the life-energy of the people: 1st, to enable, by cleanliness, the skin to perform those functions by which a proper equilibrium of the solid and liquid constituents of our system and the healthy constitution of our tissues is preserved: 2nd, by a proper supply of air to afford to the lungs the requisite means for ærating the blood, and supporting that combustion of the carbonaceous elements of the food by which the temperature, necessary for the existence of animal life, is maintained: and 3rd, to obtain full access of light, the true vivifier, the great source of energy in nature, without which neither chemical nor physiological action can be duly carried on. If those beneficial agencies are present, the influence of contagious miasma may be comparatively little dreaded. Those sources of disease of which we are only now beginning to have any real or scientific knowledge, are repelled by the energetic vitality of a healthy frame, and exercise their fatal powers in preference on weakened organisations.

The special means of cleanliness for the people must naturally be, a copious supply of pure and well ærated water, not merely in such quantity as may suffice for domestic use, for the exigencies of personal purification and for public baths and washhouses, but also what may be necessary for the complete removal of the debris and refuse materials which must accumulate wherever animals collect, and the decomposition of which proves often the most dangerous source of moral degradation and disease. Cleanliness is truly next to godliness; and there is no duty more imperative on those who have charge of the public administration of large cities, than to provide abundant means for the removal of all collections of sewage materials from the inhabited places, and to afford even to the poorest portion of the population the means of personal and domestic purification. You are all aware of the great scale on which the proposed new water supply of Dublin is now being organized; the cyclopean reservoirs, the gigantic pipes, the successive stages of whose slow construction have been festively celebrated. Let us hope that before very long the expected water supply shall be actually placed at the disposal of the citizens, and that the promised advantages to the security of life and property against fire, to the health, the cleanliness, and the safety of the people, may be realized.

The progress of investigation of late years has rendered it probable that many if not all of the diseases which we describe under the term contagious, from their being in some way or other communicable from one person to another, are produced by organic germs capable of rapid reproduction, which, emanating from one diseased individual, may be carried, through the air, or by means of clothing, or of another person himself not affected, and may generate the

disease elsewhere, when they find a suitable situation. Such maladies constitute the class now known as zymotic or ferment diseases, as the contagious matter is believed to be analogous to the bodies termed ferments in their power of rapid reproduction and development, where they find suitable material to act upon. It would be out of place, even if time allowed, were I to enter here into any detailed account or discussion of those interesting questions of contagion. The phenomena are so varied, and apparently so contradictory, that, until lately, the question of the contagious or non-contagious nature of various diseases was keenly debated. Those questions have lost much of their importance now that we understand more accurately in what contagion really consists, and that the means of avoiding or counteracting its influence are better known.

Some general observations on the nature of the matter of contagion and the processes by which it is spread, so far as the subject admits of popular explanation, may, however, not be considered irrevelant to the general sanitary question with which we are engaged.

Mysterious and complicated as are those phenomena, analogous to fermentation, by which it is supposed that certain contagious or zymotic diseases are produced, that process does not suffice to explain all the circumstances under which disease is communicated, and we are obliged to admit that in many and in some of the gravest instances, morbific influences are propagated through the agency of beings of a higher organization. Science has demonstrated that man and other animals are themselves the material means and pabulum of existence to myriads of beings more or less minute, and of which in many cases we can only infer the existence from their lamentable effects: that probably every living organism is itself truly a microcosm, a world in itself, in which infinite series of lesser organisms live and die, carrying in their life or in their death the elements of disease and inevitable decay to the being in which they have been formed. We thus may recognize among the maladies which are known as infectious or contagious the two groups of fermentative and of parasitic diseases; of the former we may regard small-pox as the characteristic type, with probably oriental plague and the cattle disease from whose ravages this country has so far fortunately escaped. In those the virus may be transferred by inoculation, and acting on materials naturally existing in the blood generates by a fermentative action matter of the same kind, which often tends to eliminate itself from the system under various external forms. Not so easily explained as results of fermentative action are the phenomena presented by the spread of the contagion of Asiatic cholera and typhus fever. Those terrible pestilences appear to inflict their ravages by other means, and many phenomena appear to lead to the belief that those and some similar forms of disease are generated by means of minute beings which being diffused through the atmosphere, settle down on certain places, or on certain individuals, in a most irregular and anomalous way, although in all cases favoured by want of cleanliness, of drainage, and of ventilation, and often directly supplied through water and through communica-

tion with diseased persons or places. Such diseases do not admit of being directly reproduced by inoculation, nor can in most cases, any distinct virus be exhibited; but this is probably due to the imperfection of our means of investigation, and not to any real distinction in the two classes of disease. The transference of such organic germs is illustrated by the curious form of fever which has been epidemic for the last few years in Central Germany, and which has been traced to the development in the muscular tissue of the human body of a microscopic worm, the *trichina spiralis*, which obtains entrance from diseased meat, especially pork, having been used as food. In this extraordinary disease, every part of the muscular tissue becomes infested with this minute animal, and a small bit of diseased muscle if inserted in the muscle of a healthy animal transplants the parasite, which then lives and multiplies in its new position, to the imminent risk of the individual who has afforded it a home. It may interest some of my friends here to know that this little worm, although showing utter indifference to every kind of drugs, has an intense dislike to alcohol, and the only individuals in Central Germany who have been latterly able to eat diseased meat with impunity have been those reckless individuals who washed down their roast pork and sausages with copious libations of corn brandy.

From the more definite knowledge of the nature of contagious influences which those observations will serve to indicate, it is apparent that in placing cleanliness, personal and domestic, at the head of the means for preventing or checking the spread of disease, I but carried out the strict principles of science. Every collection of filth, every space occupied by stagnant water or often respired air, becomes a favourable position for the growth and diffusion of those germs of infection. By their being diluted and removed by fresh currents of air, by frequent ablutions, and by drainage, their power to do evil is abated if not destroyed, whilst the freshened energies of life conferred upon the system by the action of those sanative means, enable the organs to resist and to reject those morbific influences to which otherwise they might have succumbed. To those means of resisting disease, however, we need not be necessarily restricted; we may call in the assistance of science in another form, and not merely removing the infectious matter, we may altogether destroy and decompose it by means of suitable disinfecting agents.

Under the name of disinfectants are, however, often confounded two different classes of agents which it is very important to distinguish: Those which merely disguise, and those which really destroy the morbific matter. So invariably are filth and disease associated, that the fœtid emanations which cleanliness and ventilation would soon remove, are often confounded with the actual substance of contagion, and it is thought that by perfumes and fumigations which can overpower by a stronger smell the fœtor of dirt and sickness, the danger of infection can be removed. This has often proved a fatal mistake, although often also it has acted beneficially by inspiring confidence and exalting the vital force which then was able to escape occasions of disease, under which otherwise the system might have sunk.

Nothing can be considered as really a disinfectant but what can actually destroy the organic germs upon which the propagation of disease depends. Of such bodies chlorine is by far the most available, and the most powerful. The direct decomposing action which it exercises on all organic bodies, and the consequent destruction of all vitality in organic germs, such as might propagate disease, renders it the most valuable agent for sanitary purposes that we possess; whilst the facility with which it can be applied in various forms, as gas, as liquid, and in solid combination enables it to be adapted to the most varied circumstances. It is only necessary to avoid the liberation in any confined space of such a quantity of chlorine gas as might affect respiration, or produce irritation of the lungs: and this is easily done. Gaseous chlorine when respired has no other injurious effect: it is not in any way poisonous. Many other chemical agents which combine with or decompose organic bodies are also excellent disinfectants, as sulphurous acid, and especially permanganate of potash: this body, which is a very powerful oxidizing agent, is now very frequently employed to detect the presence of abnormal quantities of organic matter in air or water. In fact, any substance which is capable of arresting fermentation by destroying the vitality and energy of the organisms which constitute an active ferment, will, for the same reason, arrest and destroy the matter of contagion.

These disinfecting agents, chlorine especially, have the property of destroying foul smells by the same process, of changing the nature of the fœtid material, and generating other bodies which are free from practical inconvenience. They are therefore very usefully employed for the purpose of deodorizing or disinfecting, those words being popularly considered synonymous, the sewage and other similar materials which would otherwise become offensive nuisances. It is, however, very necessary to distinguish between these two actions: an atmosphere apparently pure and bright, may be loaded with typhoid emanations; a water clear, fresh-tasting, and sparkling may be infected with the cholera poison derived from drainage through the soil from the neglected sewage of neighbouring infected places. On the other hand, the air of a chemical laboratory, or of a manufactory, may be offensive from the escape of ill-smelling gases or vapours, and yet be totally incapable of producing contagious disease. An atmosphere may, however, be injurious to life from the presence of directly poisonous gases independently of any power of producing contagious disease; and may thus be vitiated by overcrowding, by exhalations from cellars and pits; by the proximity of lime or cement kilns, which diffuse the poisonous gases, carbonic acid, and carbonic oxide. Such air may be rapidly fatal if respired, and yet present no sensible indication of the danger. On the other hand, although sulphide of hydrogen is extremely poisonous when respired; such is the disgusting smell and taste of air containing even one ten-thousandth part of its volume of that gas, that attention is at once called to its presence, and the danger may be avoided. By means of chlorine this poisonous gas is at once destroyed, other compounds being formed which are free from any injurious properties.

A very interesting subject has been discussed lately in relation to the salubrity of the atmosphere, in which a peculiar material termed ozone has been supposed to play an important part. You will find an excellent resumé of what has been suggested regarding this ozone in the lectures on public health delivered by Dr. Mapother. It is certain that the free open air of the country and particularly near the sea, presents to re-agents many of the characters which belong to ozone, or rather to the presence of an oxidizing agent, for the ozone itself is believed to be a modification of the natural oxygen of the atmosphere, and that this oxydizing or ozonic re-action of the air is lost or absent in air which has been often breathed, or that is vitiated by the emanations of decomposing organic matter. It is hence pretty certain that air presenting the re-actions of ozone is purer and better suited to support energetic life than the air more or less foul which does not show this re-action; but whether this oxidizing re-action in the air is in reality due to the presence of ozone has been latterly more and more called in question. The same re-actions are produced by the presence of minute traces of nitric and nitrous acids. These bodies are continually generated in the air by the unceasing disturbances of electrical equilibrium. The gradual oxidation of organic matter which takes place on the surface of the soil, and in the air itself, also generates those acids, and their quantity in the atmosphere is usually such as to fully explain the re-actions which have been attributed to ozone. I do not myself express an opinion on the subject; I only give the results of chemical enquiry so far as it has as yet been carried on. It is, however, certain that the air itself is constantly and powerfully converting the effete organic residues of animal and vegetable life into the materials from which new forms of animals and plants are to be produced, and that thus the never-ceasing cycle of vitality ordained by an all-wise providence is harmoniously carried on—the close of one phase of physical existence supplying the materials from which the substance of the plants and animals of a succeeding generation are to be formed.

This is no merely abstract or speculative principle. The successive utilization of the same material elements in the formation of successive phases of organic life is the basis of practical agriculture; on it rests the whole science of the application of manures. It has the most direct influence on the economy of large cities and on the prosperity of nations; for there is little doubt but that after allowing for the moral and political agencies which contributed to the destruction of the great empires of antiquity from Babylon to Rome, no insignificant element is to be found in the impoverishment of the neighbouring territories, the produce of which was consumed within the great cities without any equivalent being returned to the soil. Hence those lands became finally incapable of supplying food, and the population became dependant on the produce of distant countries, with which a political connexion unstable and precarious could not permanently be maintained.

On a smaller scale the same process is going on in modern nations, and indeed with an accelerated pace among ourselves. Every

country which is an exporter of food, diminishes by so much its power to produce food. The mineral elements of food, the earthy phosphates of which the bony skeleton is composed, exist in the soil, but only to a limited extent, and the supply should soon come to an end if not compensated for by the restoration of as much of the same material under the form of manure. In new countries according as the soil of one district becomes exhausted, the cultivation passes to another, but even in America this can no longer be easily done. With us, it is of course impossible, and we must bear in mind that for every ton of bone that we send out of the country we are so much poorer in capital unless we replace it by a ton of bone brought from some other source. Hence the influence of a large city like Dublin is necessarily to impoverish the soil of the surrounding districts, unless means be taken to restore to the soil the residual materials of the food which has served for the support of the inhabitants. The question of sewage to which I have already referred in connexion with the means of health and cleanliness, assumes thus additional importance when considered in relation to restoring the productive powers of the soil. The utilization of town sewage, however, must depend for its practicability on many complex conditions as to form and locality, upon considerations not merely of chemical and engineering skill, but also of financial prudence. Into those matters it would be impossible for me to enter; as regards this city the subject is in the hands of the municipal authorities, assisted by eminent professional opinions, and from what I have seen of the plans recently under consideration, I have no doubt that before very long we shall see our river and its quays restored to their primitive salubrity, whilst what is now a source of defilement and disease, will afford the means of reclaiming new lands to profitable cultivation, and afford new sources for the supply of food.

I have thus endeavoured to explain in a simple form the general principles of Sanitary Science, as constituting the third branch of the business of this Society. We have seen that a large class of those diseases which are most destructive, especially to the poor, are in a great degree preventible, by the adoption of simple hygienic means, by cleanliness, by ventilation, and by the use of those disinfecting agents which science teaches us to employ. In the foregoing remarks I have not adverted to that which lies at the basis of all sanitary requirements: the means of providing for the people a proper supply of food. Good and sound nourishment is in itself a powerful sanitary agent, enabling the system to resist tendencies to disease, under which, with a lower standard of living, it would have sunk. So direct is the connexion between zymotic disease and want of food that the term famine-fever has been adopted in medical classification for that form of epidemic of which in 1847 we had in this country so fearful an example—we must not, however, now enter into that subject. The means for providing the people with good and abundant food is to be found in facilitating the access of the people to industrial employment, and rendering that employment grateful by securing that the worker shall enjoy the product of his toil. In such form, however, the question touches upon matters

belonging rather to the practical statesman than to the statistical enquirer, and on which it would be unsuitable for me to dwell.

In another aspect, however, the influence of sanitary conditions on the material and financial conditions of the working classes may legitimately be considered here. In no way is the suffering from sickness more severely felt than in the destitution which almost invariably attends the protracted illness of the bread-winner of a family; and the consequent loss of the weekly wages upon which the support of a wife and children usually depends. The inevitable reduction in the amount and quality of food; the absorption of any little fund of savings which the providence of better times had formed; the pledging of the little stock of furniture and clothing; the gradual sinking into destitution, and the loss of energy and hope which throws the family into the conditions most conducive to the still further propagation of disease. It is true that in most of the trades benevolent societies are organized, from which, when properly conducted, great benefits are derived, and much assistance is afforded to their members suffering from sickness; but the sphere of action of such societies is still very limited, and the actual loss of money capital, not to speak of physical suffering and moral depression, consequent upon the spread among the working classes of preventible diseases, presents proportions well calculated to arrest attention when we submit it to enquiry.

My friend Dr. Mapother has very kindly obtained for me some returns illustrating the proportion of time lost through sickness by the working men in various employments in this city. Those estimates, into the details of which I need not enter here, as I hope the subject will be brought fully under the notice of the Society at another time, represent the proportion of illness under the circumstances which render it a minimum, as in those employments no absolutely sickly person would be retained. It appears, however, that the average time during which a workman is prevented from earning by illness is from four to twelve days in the year, or as we may take it $2\frac{1}{2}$ per cent. of the whole period. Now as there is estimated to be in Dublin of the classes living upon wages 100,000 individuals we may judge how great, even when taken at its lowest average rate, must be the actual loss in money to the working classes, and consequently to the state, from illness of which, as one fifth of the total deaths are estimated to result from zymotic diseases, a large part could be avoided by the adoption of sanitary precautions.

But the amount of money measured in this way represents but a very small part of the injury to society, and loss of capital which results from the spread of disease among the working classes. I have mentioned in the early part of this address that the mean value of life in this country is forty one years, which signifies that every child born may be expected in average to live so long. But if the perils of childhood have been escaped, then the value of life becomes much greater, and a person who has arrived at manhood in health, may be expected in average to survive to the age of sixty-three years. This should allow of marriage, and of the children

being reared until the youngest was able to earn its subsistence, and under those circumstances, the family is self-supporting: it is a strength and stability to the state as an element of population: but if from exposure to contagion, or other influence of disease, the provider for such a family dies before the children have attained such power of independent existence, then the family is thrown upon its friends or upon the poor rates for support, and hence we have in our workhouses such numbers of widows and orphans hopelessly supported at the public charge. Contrast with these sources of unproductive expenditure, the cost of any or all the sanitary provisions which have been or may be proposed, and it will be seen that whether we regard our water supply, our sewage arrangements, or other means for bringing cleanliness and comfort to the dwellings of the poor, not merely do the dictates of philanthropy and of Christian charity direct them to be carried out in an abundant and liberal spirit, but the narrowest instincts of self-preservation, and the practical calculation of ultimate economy teach us the same lesson.

In this city, where the excellence, the numbers, and the importance of our medical charities are so well known, it is not necessary for me to refer to the subject of medical assistance in connection with sanitary reform. Medicines, and even the most sedulous care on the part of the physician, do not suffice to alleviate the mental and bodily sufferings of the fever-stricken father, or console by timely and appropriate assistance the anxious family. For such aid a more tender and sympathising helper must be sought, and whether we look to the wards of our splendid hospitals, or to the crowded lanes and alleys of our town, we find on this sacred mission the nursing Sisters of Mercy and of Charity, defying all that is repulsive to our weaker nature, all that is most dangerous in pestilence and death, to bring to the bed of sickness whatever can tend to physical relief; to the pillow of the departing the words of heavenly peace and hope. That holy ministry of truest charity is fortunately not limited to the members of one country or of one creed. The name of Florence Nightingale honoured everywhere and loved by all, typifies the same burning charity which kindling in other breasts a similar ardour, has given origin in London, in Liverpool, and in other cities, to the missions of trained district nurses among the poor, and to the formation of schools for educating nurses for hospitals, and for private requirements. By such means a want will be supplied which every physician and every person conversant with the necessities of the sick, rich as well as poor, has felt to be of great importance. To such enterprises, most useful auxiliaries to the progress of sanitary reform, we can give our entire approval. Let us hope that we shall before long see still farther extensions of such practical beneficence among ourselves, bearing in mind the words of the Apostle, that of the three things which abide amongst us, faith, hope, and charity, the greatest of all is charity.

I feel that I have occupied this assembly to an unseemly length, and perhaps exhausted your patience: but the subject was one which from its scientific interest and its practical importance, car-

ried me further, almost against my will, than I had at first intended. I thank you for the kind patience with which you have heard what I had to say, and I hope that this meeting will prove a good augury of the session which the Society has now commenced.

II.—*Report of the Council at the Opening of the Twentieth Session.*

[Read Tuesday, 27th November, 1866.]

At the commencement of this, the Twentieth Session of our Society, we feel much pleasure in congratulating you on its continued progress, and the success which has attended its efforts in promoting the great social and scientific ends contemplated by its founders. The number of members and the amount of our finances are each year steadily increasing.

During the recent session several valuable papers were read, some of them devoted to a consideration of subjects of present interest—all of them dealing with questions of vast social importance. Early in the session, Dr. Mapother read a paper on the important subject of Sanitary Reform, in which he called attention to the unhealthiness of Irish towns, and the evils arising from the want of sanitary legislation, and the defective and insufficient powers of the local authorities. Since then this subject has received the attention of the Legislature, and, by the Sanitary Act of 1866, the central and local authorities in this country have been invested with all the same powers and authorities as are now possessed by similar bodies in the sister kingdom, and are enabled to take effective measures towards remedying that unhealthy condition which Dr. Mapother, in his valuable paper, has shown to distinguish somany of our towns.

The period having arrived when the Government, by the Act of 1844, would be enabled to treat for the purchase of railways, and a Royal Commission, before which several of our members have been examined, being engaged for some time in investigating the matter, the subject of Railway Reform and Management has become one of the great questions of the day. On this subject three papers were read, which led to very interesting discussions. One was on "The Relation of the State to Railways," by Mr. Joseph J. Murphy; another by Dr. Hancock, on "The Financial Position of Irish Railways"; and the third, on "The French System of Railways," by Mr. Alexander McDonnell.

Upon the question of affording government security to the savings of the poor by life insurance and annuities, Mr. Michael J. O'Shaughnessy contributed a paper, in which he called attention to the Government Assurance and Annuity Acts of 1853 and 1864 (16 and 17 Vict. cap. 45; 27 and 28 Vict. cap. 43), and the great advantage of having their provisions brought into operation in Ireland, and we have much pleasure in being able to state that

since the reading of this paper those statutes have been brought into operation in this country, and we are confident they will prove of much benefit to the humbler classes of our people.

The recent commercial crisis and the sanction given by Government to the suspension of the Bank Charter Act for the third time since its enactment in 1844, gave rise to a consideration of our banking system with reference to a limited issue of Government Paper Money; Mr. Ross read a paper on this important subject. The Extension of the Field for the Employment of Women was discussed by Professor Houston in an interesting paper, in which he directed attention to the excellent manner in which the Queen's Institute was managed, and the amount of good it had already done. Papers on the Irish Bankrupt Code with suggestions for its Amendment by Mr. Charles Meldon, and Observations on the Record of Titles' Act by Mr. Fallon were brought before the Society during the year. Most of these papers have been already published in the Journal of the Society.

From the experience of the past few sessions the Council have come to the conclusion that it would prove advantageous to make such arrangements for the subjects to be considered at the different meetings of the Society, that papers on cognate subjects should be grouped for discussion on the same evening.

At the time when the Social Inquiry Society was incorporated with this Society, a provision was made for the preparation of Reports from time to time under the direction of the Council on important social questions, and in consequence of an application from Jonathan Pim, Esq., M.P., Vice-President, the Council selected Mr. Randal McDonnell to prepare a report on the Impediments to Express Contracts as to the occupation of land in Ireland. Mr. McDonnell's Report has been communicated to the members by being inserted in the Journal and it forms a valuable addition to the series of reports and papers on the land question which occupied so much of the attention of the Society in former years.

The Council regret to have to announce the retirement of your late Secretaries, Mark S. O'Shaughnessy, Esq. and Edward Gibson, Esq. These gentlemen have rendered very efficient service to the Society. Mr. O'Shaughnessy took an active part in recasting the laws and arrangements of the Society, consequent on the changes introduced after the Dublin meeting of the Social Science Congress in 1861. He gave special attention to the editing of the Journal and the financial arrangements of the Society, and contributed some valuable papers during the six years of his Secretaryship. To Mr. Gibson the acknowledgements of the Society are due for the promptitude with which, on several occasions, at the request of the Council, he undertook to examine and elucidate the bearings of questions of immediate interest, and the ability with which he executed the task.

During the year, courses of lectures were delivered by the Barrington lecturer, Mr. Monroe, in Lurgan and Cork on the subject of Co-operation, its rise and progress—Post-office savings banks, Friendly Societies, Government Annuities, and Free Trade; and it appears from

the Report of Mr. Monroe that these courses have been very successful, in Cork especially, where the arrangements were conducted by a committee, consisting of the foremen of the principal shipbuilding and mercantile establishments in that city, and the audiences were never less than one thousand, and on one occasion exceeded twelve hundred, and were composed principally of large numbers of intelligent artisans. In Lurgan, also, the lectures were attended by large and attentive audiences, who manifested their interest in the subjects discussed by asking a variety of questions at the close of the course.

In conclusion, we notice with satisfaction that the National Association for the promotion of Social Science have acceded to the invitation of the Town Council of Belfast to hold their next congress in Belfast. The meeting has been fixed to take place in September,* 1867, and we feel confident that the members of this Society will avail themselves of the opportunity to again manifest their interest in the Association for the promotion of Social Science, which they evinced in so marked a manner on the occasion of the Association's former visit to Dublin in 1861.

III.—*The Condition of our Railways considered with reference to their Purchase by the State.* By Joseph T. Pim, Esq.

[Read, Tuesday, 18th of December, 1866.]

The condition of the Railways of Great Britain and Ireland has for the past few years increasingly occupied public attention. It has caused much dissatisfaction both to the public and to the shareholders—to the public because railways have failed to afford them the accommodation they desire ; and to the shareholders because railways have failed to return them the profits they had expected.

People have begun to doubt the soundness of the foundation on which our railway system is based, to lose faith in the universality of the superiority of private enterprise over that of the State, and to think that our system does not compare favourably with those of continental countries. In short, the conviction is rapidly forcing itself on the public mind that private enterprise, practically uncontrolled and undirected by the State, has failed, as regards our railways, in giving to the nation a commensurate return for its outlay ; and that the time has come for us to retrace our steps in railway legislation. The opinion is rapidly growing that the State should resume the power it has conferred on the many trading corporations by which our railways have been constructed and managed, that it should purchase their entire property, and that we should start afresh on a sounder principle of management ; whether directly by the State, as in Belgium; or indirectly through companies of lessees

* The meeting is announced to commence on the 11th of September.

under State control, as in France; by which means the great desiderata, uniformity of management, low fares, and careful consideration for the public good, might be obtained.

At the first mention of the idea of the purchase or management of our railways by the State, some persons exclaim that such a thing would be setting up a monopoly, and altogether contrary to the principles of free trade. It seems to me that people very often invoke the principles of free trade without very well knowing what those principles are, and I cannot well see what free trade has to do with the question one way or the other. But if any system is contrary to the principles of free trade, it is the railway system as it is; for does not Parliament protect existing lines by refusing to allow the construction of competing ones solely as competing lines? And as to setting up a monopoly, are not railways now, virtually, so many monopolies, and necessarily so? And would it not therefore be but the transference of those monopolies to the State—the transference from the management by directors, who are responsible only to the small number of partners in those monopolies—the shareholders, to the management by the Government, which would be responsible to the large number of partners in the monopoly—the whole nation?

It is the very fact that railways are and must be monopolies that is the strongest argument in favour of their purchase and control by the State.

Whilst I strongly advocate Government interference as a remedy for the many defects in the management of our railways, I hope it will not be thought that I am wanting in admiration for the brilliant triumphs of private enterprise for which Great Britain has been so remarkable, and which have been no where more conspicuously won than in her railway system. It must be remembered that the first English railways were successfully carried out in spite of the incredulity and ridicule of both learned and ignorant, and the opposition of the rich and the powerful; that in no country more triumphantly than in England have natural difficulties been overcome by engineering science; or, even before the success of railways had been proved by experience, have capitalists more courageously advanced their money for their construction.

But I cannot at the same time avoid the consideration, that the railways of this wealthiest of nations, which possesses the ablest engineers, the most skilful artizans, the greatest abundance of coal and of iron, the vast manufacturing and commercial experience of its people, and, excepting Belgium, the densest population and the largest traffic, have, notwithstanding all these great advantages, cost more in their construction, charge more for the conveyance of passengers, and pay their shareholders worse than those of most of the great countries of Europe, without surpassing them in the comforts and conveniences they afford their passengers in almost any respect except in that of speed.

Many of the evils in our Railway System of which we have now to complain are to be accounted for by the fact that railways were first constructed in England; and we are now reaping the fruit of

our want of experience when starting a system which has so immensely outgrown the ideas of its founders. Other countries, profiting by our experience, have set out on the sounder basis of government direction and control, and have thus avoided many of the difficulties into which we have fallen.

In consequence of the ignorant opposition of landowners and others to the construction of lines through their districts in the early stage of railway history, the defective legislation of Parliament on the subject, and the want of any central authority, our so-called Railway System, instead of being the filling-in of an originally comprehensive, well-considered, and fore-seeing plan, is rather an unsystematic network, the result of piece-meal design and accidental combination.

The cumbersome forms of parliamentary procedure have made the process by which the right to construct a railway is obtained most difficult, uncertain, and expensive; and the unsuitableness of a Parliamentary Committee to decide on the merits of rival railway schemes has often been proved by the most ill-judged decisions. As a consequence, many railways have been made that were not wanted, and where they were wanted they have not been made; and the decisions arrived at by Parliament on railway matters have been most contradictory and irreconcilable. The laws relating to the purchase of land by railway companies have been so much too favourable to landowners, that the enormous sums which they have been able to obtain by way of compensation for injury done to their property, which has, as a rule, been improved by the passing of railways through it, can only be spoken of as spoliation.

These statements I make on the authority of Robert Stephenson, to whose paper, entitled the "Railway System and its Results," which he read in 1856 before the Institution of Civil Engineers, and which is to be found appended to Smiles' Life of George Stephenson, I would refer my hearers for most valuable and interesting information respecting the defects in railway legislation.

*Table No. 1. in the printed statistics, which I have taken from the article on Railways in the Encyclopædia Britannica, will show the comparative cost of railways per mile in Great Britain and Ireland, and in the chief states of Europe, in the year 1857.

By this table it will be seen that, while the cost per mile of Irish railways has been somewhat below the average, Scotch railways have been much beyond, and English railways more than double the average.

Of European railways those of Germany have been the most cheaply constructed, while those of France have cost the most.

Table No. 6, also taken from the same source, will show on what items the enormous average cost of British railways has been expended, and it will be seen what a very large proportion has gone for parliamentary expenses and for the purchase of land, amounting together to more than a fourth of the total cost.

* For Statistical Tables, see page 390, et seq.

By Table No. 2, taken from Thom's Directory, it will be seen that, in 1864, the total outlay of capital on the railways of the United Kingdom had reached the gigantic sum of £425,000,000, or as much as half our national debt; and, if we take the estimate of Table No. 6 as correct, it will be found that the enormous sum of £25,000,000 has gone for parliamentary expenses, and £85,000,000 for the purchase of land and for compensation to landowners for so-called injury to their property; or altogether that £110,000,000 have been spent before a sod could be turned for the construction of our railways. Much of this excessive preliminary expenditure might have been avoided if railways had been constructed by the State; or, even if made by private enterprise, had railway legislation been improved.

This unnecessary expenditure will, to a large extent, show why, with higher fares and larger traffic, British railways have not paid so well as those of the Continent. It is part of the penalty we pay for that jealousy of Government interference which we associate with our ideas of freedom; but, as in Belgium, which also enjoys free institutions, railways have been made and are managed by the State, and, with the lowest fares in Europe, produce a larger profit than ours, I can see no reason why we might not have had better railways for less money, without any infringement of our liberties, had the control of our railway system been undertaken by the State, and had they been constructed on a definite plan, and managed, as in Belgium, by a central authority for the public good.

As a proof that this heavy preliminary expenditure was unnecessary, it may be stated that many English lines have been constructed at a comparatively small cost; the cheapest in 1857 being the Carlisle and Silloth, at about £6,500 per mile, while the Birkenhead, Cheshire, and Lancashire Junction cost the enormous sum of £70,000 per mile, chiefly in consequence of a protracted parliamentary contest, as the line runs through a level country with no great engineering difficulties.

In Scotland the Forth and Clyde line cost only £5,500, while the Caledonian cost £43,000 per mile; and in Ireland the Limerick and Foynes cost £5,300; and the Dublin and Kingstown £53,000 per mile.*

These facts will sufficiently prove that our railway system has been by no means as well designed as it might have been, and has been vastly more costly than there was any necessity for; and while the shareholders have lost heavily by this excessive and unnecessary outlay of capital in the construction of their railways, the public has also suffered, either from the attempt to produce a dividend by means of increased fares, or by the bad accommodation which may naturally be expected on a railway that does not pay its shareholders properly. For this reason the construction of competing lines, instead of being beneficial to the interests of the pub-

* It should be observed that these comparisons are between railways with only a single line, and railways with a double line of rails. The different circumstances of the railways compared must, also, be considered. But these points are far from being sufficient to account for the enormous disparity of cost.

lic, as is generally supposed, has been in reality unfavourable, for as *one* railway between any two towns has always been found capable of carrying *all* the traffic, so the construction of a competing line has, in the long run, been prejudicial to the public. Railway companies have never for any length of time maintained a competition injurious to themselves; they have always, after a short period of reduced fares, combined against the public, and agreed to divide the traffic.

So far I have confined myself to the consideration of the defects in the original construction of our railways—the results of the system established or sanctioned by the legislature. I now come to the question of the faults in the management, for which, while we may look on them as the natural fruits of the system, we cannot but hold railway directors responsible.

Amongst these I would mention, in the first place, the excessive competition between rival companies, not for traffic, but for territory—for branch lines, which, while they acted as feeders to one line, were to sap the traffic of the other; this unwise competition leading to enormous parliamentary expenditure, and the branch lines often, when made, being found to be either unnecessary or at least premature, and so sapping the profits of the successful company as well as those of its opponents.

Secondly, the excessive rates for goods and passengers, the very insufficient accommodation for third-class passengers, and the almost universal attempt to drive third-class passengers into the second class, and second-class passengers into the first class; also the general illiberality of management and the want of regard for the interests, convenience, and feelings of the public; and the prevalence of the idea that the interests of railway companies and of the public are antagonistic.

On this latter point, and on the question of fares, I will here read an extract from the paper by Robert Stephenson to which I have already referred* :—

"It may be thought that, with respect to fares, the interests of "railway companies and of the public are antagonistic. Regarding "the question, however, with a more enlarged view, it will be "readily seen that, so far from those interests being opposed, they "are in all respects identical. Fares should be regulated by direct- "orates exclusively by a consideration of the circumstances which "produce the largest revenue to the companies; and the circum- "stances which produce the largest revenue are those which most "induce travellers to avail themselves of railway facilities. As "regards the public, it may easily be shown that nothing is so desi- "rable for their interests as to take advantage of all the opportuni- "ties afforded by railways. As regards railways, it is certain that "nothing is so profitable, because nothing is so cheaply transported, "as passenger traffic. Goods traffic, of whatsoever description, must "be more or less costly. Every article conveyed by railway requires "handling and conveyance beyond the limit of the railway stations; "but passengers take care of themselves, and find their own way,

* Pages 519-521.

" at their own cost, from the terminus at which they are set down. " It is true that passengers require carriages somewhat more expen- " sive in their construction than those prepared for goods; but this " expense is compensated for by the circumstance that they are " capable of running, and do run, a much greater number of miles; " that the weight of passengers is small in proportion to the weight " of goods, and that consequently the cost for locomotive power is less. " It has been shown that 111,000,000 passengers, weighing 8,000,000 " tons, have been conveyed, during the past year, over an average dis- " tance of 12 miles, yielding a revenue of more than £9,000,000 ster- " ling. This gives, at the least, 2s. per ton per mile for the weight of " passengers conveyed. Coals are conveyed, in some instances, at one " halfpenny per ton per mile. It is to be recollected that trains are " usually capable of transporting at least two or three times the " number of passengers ordinarily travelling by them, and that the " weight of the passengers, in all cases, is in extremely small pro- " portion to the gross weight of a train, as, on an average, there " will be 14 passengers to every ton, and each train will readily " convey 200 passengers. The cost of running a train may be " assumed in most cases to be about 1s. 3d. per mile; therefore 100 " passengers, at five-eighths of a penny per mile per passenger, would " give 5s. 2½d. per train per mile, which may be taken as about the " average of train earnings throughout the year. It is obvious, " therefore, that anything beyond five-eighths of a penny per mile " per passenger may be rendered profitable, even if the passenger " train is only half-filled. Hence all directorates should look to the " maximum amount of gross revenue to be derived from large pas- " senger-traffic, which maximum amount is only to be obtained by " affording enlarged public facilities and temptations to travel. It " results, then, that the interests of the public and of the companies " are identical, and not antagonistic."

This is very strong evidence in favour of low fares, and, coming from a man of such vast practical knowledge and experience on railway matters, is particularly valuable.

Now let us see how these principles, so clearly laid down by Mr. Stephenson, have been carried out by British railway directors.

Table No. 3, which I have compiled from Bradshaw and other foreign Railway Guides, will show, in a comparative statement, the fares which are charged per mile in several different countries of Europe. By this it will be seen that Belgian railway fares are the lowest, and British fares the highest.*

I find that the receipts per mile from passengers in Belgium are almost as great as in England, although the fares are only about one-third as much as English fares, from which it follows that the number of passengers per mile in Belgium must be not far from three times as much as in England. By Table No. 4, which I have taken from "The Statesman's Year-book," it will be seen that the

* There is one peculiarity as regards Belgian fares that requires explanation. In Belgium, as the length of the journey increases, the rate per mile decreases, and this in a rapid proportion; and the same rule applies to goods as well as to passengers.

population per square mile is somewhat more dense in Belgium than in England, but not sufficiently so to account for the much larger traffic, clearly showing the result of low fares in inducing traffic.*

In other countries of Europe, where the population is not even so dense as in Ireland, railways pay better dividends with much lower fares than ours.

As regards accommodation to third-class passengers, I find that our railways for the most part merely keep within the strict letter of the law respecting parliamentary trains, so that, out of the eight chief lines out of London, only those to Dover and Brighton run more than one third-class train; while, as a rule, there are about eight through trains per diem; and, moreover, that this solitary third-class train on each line takes, on an average, about twice as long on the journey as the express; and, as regards the lines out of Dublin, I find the same fact as far as number of trains is concerned; and I find by the statistics in Table No. 2 that the traffic receipts from these third-class passengers, for whom so little accommodation is provided, are larger than those from either first or second-class passengers; so that in fact there are about five times as many third as first-class, and about twice as many third as second-class passengers in Great Britain.

Contrasting this state of things with the continental system, I find that in France about half the trains carry third-class passengers, and, in other countries, trains not third-class are quite the exception; and, as a rule, I believe the third-class carriages on the continent are as good as, or better than, our second-class in Ireland; the result of this greater attention to the comfort and accommodation of third-class passengers on the continent, combined with much lower fares, being a very much larger traffic. As an instance of this, I may adduce the case of Prussia, in which

* The paragraph to which this note refers is somewhat incorrect—the comparison between the fares in England and Belgium being for the year 1866, and the comparison between the receipts being for the year 1865. In 1865 the Belgian fares per mile were, First Class, 1·23d.; Second, ·92d.; Third, ·61d., for every length of journey. In 1866 the system of reducing the fare per mile, according as the length of journey increased, was introduced, and consequently the average Belgian fares are now very much less than they were in 1865, and it is intended by the Belgian government that they shall be still further reduced. Therefore, although the present Belgian fares are not much more than one-third as much as English fares, for the purpose of the comparison I should have said that Belgian fares were about two-thirds as much as English fares. The reduction of 25 per cent. on return tickets in England must also be taken into account; no such reduction being made in Belgium. But as this reduction is not usually allowed to Third-class passengers, from whom more than one-third of the total passenger receipts in England is obtained, this does not amount to so much as would at first sight appear. In addition to this, however, the inference which I have drawn from the fact of Belgian fares being lower than, and the receipts as much as in England, is not necessarily correct; for if the average distance travelled by each passenger in Belgium were greater than in England, or the proportion of First and Second-class passengers in Belgium larger than in England, the same result might follow, viz.—that with lower fares in Belgium than in England the receipts should be as large, and this without a larger number of passengers.

country, in the year 1862, the number of passengers were, in round numbers :—

First class	...	...	...	*Half* a million.
Second class	...	...	...	*Four* millions.
Third class	...	...	...	*Twelve* millions.
Fourth class	...	...	...	*Eight* millions.

Now this was in a country not so densely populated as Ireland : and with fares about one-third less than Irish fares, the gross receipts per mile were £2,056 against £881 in Ireland, in 1864, or two and a-half times as much. These facts I give on the authority of the "Statesman's Year-book."

So much respecting the loss sustained by the public directly by the present system of railway management. There still remains, however, the indirect injury to the interests of the public, in consequence of *financial* mismanagement; in which case, though the shareholders are the direct losers, the public must ultimately suffer. Of this financial mismanagement the two cases that are just now attracting so much attention, the London, Chatham, and Dover, and the North British Railway Companies are striking instances.

The consideration of all these evils, in the past and present condition of our railways, leads me to the conclusion that, being inherent in the system, they will always exist so long as it remains unchanged, and that the only means of improvement is to be found in Government intervention.

The railway system of Great Britain has become too vast to be left to the uncontrolled management of a number of private companies, and facilities for intercourse are too essential to every sort of progress, to be left in the hands of men who are not responsible to the public, and over whom the voice of public opinion has but little influence.

Surely it cannot be in accordance with sound political economy that the great highways of a country, over which almost its whole traffic must pass, and which ought to be managed with the most careful consideration for the public good, should be left in the hands of men whose sole function is the return of a dividend to a proprietary, small as compared with the whole nation. A uniform and comprehensive management can only be obtained by a central authority. No great reduction of charges can reasonably be expected or asked from directors, the necessities of whose position make the next dividend their horizon; and especially is a liberal and far-seeing policy impossible so long as a large proportion of railway shares are held by speculators, to whom the coming dividend is the first and only consideration.

The idea of the purchase of our railways by the State, although it seems to come before the public as quite a new thing, is really but the revival of an old controversy by the coming into operation of the Railway Act of 1844.

As all railway companies which have come into existence since 1844 are liable to the provisions of this Act, they would have had no right to complain, however much they might have been

surprised, had Government determined to put it into operation; but Government wisely refrained from expressing any opinion on the subject, and appointed instead the Royal Commission of 1865 to take evidence and report on the whole question of State interference. It may, therefore, be assumed that upon the nature of the report of this Commission it will largely depend whether Government will take any or what action in the matter. The case as regards Ireland seems to stand in a somewhat different position from that of Great Britain, on account of the small extent of her railways, and their much worse condition comparatively. The evidence respecting Irish railways having been taken first, and published in anticipation of the report, very general public attention has been attracted to the subject, and much discussion has taken place concerning it in the newspapers and elsewhere.

The indefatigable exertions of Mr. Galt have awakened public opinion on the question, and the feeling in favour of Government interference is daily increasing. Many now advocate exceptional treatment of Ireland in the matter, and recommend that the experiment of State intervention should be tried first in this country, as being more easily dealt with, and as most requiring an improvement in her railway system.

The depressed condition of Ireland is a constant cause of uneasiness and regret to all concerned in her welfare, and it is hard to conceive how any measure could better tend to stimulate her industry and advance her prosperity, than a measure which would amalgamate her railways under a centralized system of management, and with an extensive reduction of charges. If this could be accomplished by Government interference, without injury to railway proprietors, and without loss to the State, no greater boon could be conferred upon this country.

But Ireland has peculiar reason to expect liberal treatment from Parliament in the matter of her railways, in that Parliament has already twice rejected admirable opportunities of giving to her a well-designed and cheaply constructed railway system. Firstly, when the Irish Railway Commission of 1838, of which Lieut. Thomas Drummond and Sir John Burgoyne were the chief members, reported in favour of the construction of railways in Ireland by the State, and according to the plan which they drew up; and secondly, when Lord George Bentinck proposed, at the time of the famine, that the £10,000,000 which were advanced by the State for the employment of the starving people, should be made use of to assist in the construction of railways through Ireland, instead of being almost altogether wasted on unnecessary public works, as unfortunately was the case.

Table No. 8 will give some idea of what the present condition of Irish railways is. A more detailed statement to the same general effect has already been laid before you by Dr. Hancock. Besides those mentioned in the list, two are absolutely bankrupt; many which had got their bills, or the construction of which had been actually begun, have come to a stand-still for want of funds; and only about half a dozen of those that are working can be said to be anything approaching to successful.

Although they have cost less per mile than the railways of most of the countries of Europe, they return a smaller profit to their proprietors; and, though the population of Ireland is more dense than that of France, Prussia, Bavaria, Switzerland, Austria, or Hanover, the receipts per mile are only about half as much as they are in those countries, while the fares are from 25 to 50 per cent higher.

There must be some cause for this state of affairs, and, doubtless, our railway directors would attribute the undeniable failure of Irish railways, as commercial undertakings, to the poverty of the country and its want of inhabitants. But this gloomy doctrine I cannot accept as a sufficient mode of accounting for their want of success.

It is no part of the province of this paper to enter into the details of Irish railway management, but I cannot but think that a stranger, who should have the leading facts placed before him, would come to the conclusion, and rightly in my opinion, that to injudicious management, as well as to the poverty of the people, the commercial failure of our railways may justly be attributed.

The head and front of the offending of railway directors has been their trying, by high charges and stinted accommodation, to make up for want of traffic, instead of adapting their system to the poverty of the country, and placing the advantages of railways within the reach of the poor by low fares, and thus stimulating the progress of the country and creating an increase of traffic. There seems to be in Ireland a complete want of community of interest and feeling between railway directors and the public, and some railway boards seem to be satisfied to be always at loggerheads with their customers. It is hard to imagine how this state of things could conduce to the prosperity of a railway company.

Our railway system is composed of too many disjointed members, each of which so much values its individuality, that, even in their own interests, irrespective of those of the public, they cannot be got to unite. Witness the fact that the 113 miles of railway that connect the two chief towns of Ireland, are the property of three different companies, with three boards of directors, and three separate sets of managers and officials, and of rolling stock.

This is a good specimen of Irish railway economy, which seems to consist in having a great many people to do, unfortunately, very little work, and then high prices and scanty accommodation to make the very little work pay.

I find that it requires the collective wisdom of about two hundred directors to manage the 1,800 miles of Irish railways, carrying a traffic producing a million and a half in the year; while I suppose a dozen or twenty directors suffice for the 1,300 miles of the London and North-Western, with its receipts of over six millions in the year; and so many boards of directors represent so many secretaries, and traffic managers, and engineers, and office clerks, and rolling stocks. Amalgamation alone would produce a large annual saving of expense.

Unification is the order of the day. It required a Cavour and a Bismark to effect it as regards Italy and Germany; and, as our railway magnates seem as little inclined to surrender their sove-

reignties as the petty rulers of the now amalgamated States of Italy and North Germany, I think we have small chance of having it carried out in the case of our railways, without the interference of the strong hand of Government. But the great desideratum is a reduction of fares, and this is more than railway directors can, or even ought to give. They are of necessity managing for the present, and not for the future, and for a proprietary whose exigencies forbid their denying themselves of any present income in the hope of future gain, no matter how certain may be the prospect of ultimate profit resulting from an increased traffic consequent on an extensive reduction of charges.

In the Blue Book of evidence before the Railway Commission, I find the chairman of the Great Southern and Western Railway almost the only director amongst those examined, who does not believe that a large reduction of fares would ultimately produce an increase of traffic sufficient to recoup the loss. He stated that he "takes a very desponding view of the prospects of Irish railways;" that "he thinks Ireland is in a poor condition, and does not think "we can expect any great increase in the passenger traffic;" and "he "has not a shadow of a doubt that a reduction of the fares and "charges on their railway would be too hazardous an experiment to "undertake;" and "cannot imagine any number of years in which" increased traffic "would make good to their proprietors the deficiency "in their dividends which would naturally follow" a large reduction of fares.

Lord Clancarty, director of the Midland Great Western Railway, stated that "in the year 1861, very much at variance with his views, "the Board decided upon raising the fares ten per cent. He told them "at the time that he thought such a step would be injurious to the "revenue of the company, and would render the railway company "extremely unpopular;" and the result of the addition of ten per cent. to the fares "has been a decided loss." "He several times "moved that a change should be made in the fares," but without success. "Having failed in obtaining any general reduction of fares," he offered "to guarantee the Company, or rather the Baronies, "against any loss on their passenger traffic for six months," on "the "extension from Athlone to Galway." "However," his offer "was "refused, and the consequence will be to the Baronies a loss proba- "bly not much under £1,000 on that part of the line for the cur- "rent half year." He thinks railway boards, "from the circumstance "of their constitution, are almost compelled to study how to create "a dividend, in order to raise the price of the shares in the market." "He thinks it unfortunate that the Government did not, in the "outset, undertake the control of the whole railway system in Ire- "land," as our railways would then have been much better laid out; "but even now the Government might exercise a wholesome con- "trol over the further development of the railway system." "The "present system of railway management by separate boards is inse- "cure, and has in some cases been disastrous in its consequences." "He thinks the whole principle of amalgamation would be most "desirable, but none so desirable as to have them [the railways]

"under the control of the Government, none that could possibly "have the same beneficial results." He "thinks there should be "responsible management; that is, a responsibility to the public." And "believes" that, under Government control, "a well-regulated "system would pay well, and cause an enormous amount of traffic "to be developed." "They would be able to harmonize the whole "system and network of railways over Ireland, so as to enable people "to travel from one part of the country to another without perpe- "tual interruptions, arising from having to cross the lines and invade "the boundaries of discordant companies." "The opportunity "appears to him favourable for putting the whole railway system "of Ireland into good order;" and he hopes "it will not be over- "looked." "He does not see any other solution of the matter" than that "the Government should become the absolute owners of the "railways." "He is satisfied that it would not only be beneficial "as an experiment" on behalf of the railways of England and Scotland, "but that it would be of the utmost value in developing "the resources of Ireland." "One matter for consideration, of "great importance to the public, would be the lowering of railway "charges, so as to develop the resources of the country, which is "not done under the existing system. * * * Railway boards "being afraid of lowering their charges, lest they should by so "doing incur a loss, and might be unable to return to the high "rates." He "believes that the Government, becoming sole owner, "and acquiring an entire control over the railways, would see its "way to what might be done. He is satisfied that the experi- "ment of lowered fares might be safely made, and as the effect "would be to open up the resources of the country, the government "would, no doubt, in the public interest, exercise the powers it "would acquire in that direction."

Lord Lucan, chairman of the Great Northern and Western Railway [Athlone to Westport and Ballina], "considers that the reason "why the railways have conferred so little benefit upon Ireland is, "that the companies are too poor to work the traffic at prices which "would encourage the people to make use of the railways." "In "the case of his own company he is firmly of opinion that, if they "could afford to have a smaller dividend for the next four or five "years, by lowering their fares considerably, not less than fifty per "cent., at the end of five years they would pay a larger dividend "than at present." "He thinks that, unless you reduce the fares "fifty per cent., you will not materially increase the traffic." "He "would propose that the first-class passenger should be carried for "a penny per mile; the second-class passenger for three farthings "per mile; and the third-class passenger for a halfpenny per mile. "He would propose that the truck, which he believes is generally "charged in England sixpence, and also in Ireland sixpence, should "be reduced to three-pence. He would propose that all heavy "goods be carried at one halfpenny per ton per mile. He has not "the smallest hesitation in saying that, if this could be done, in "the course of four or five years there would be such an increase "of traffic as would entirely restore the revenue."

"He thinks the only course to take is for the Government to "possess themselves of the whole of the railways in Ireland." "They [the Government] should buy them up; Government "should negotiate, and his belief is that the whole of the ordinary "stock of the railways could be purchased at 75 per cent. by a $3\frac{1}{2}$ 'per cent. stock." "He thinks that the preference shareholders, "generally, would accept a $3\frac{1}{2}$ per cent. stock for a 5 per cent. divi- "dend." "In his opinion the purchase by Government of the rail- "ways in Ireland would be most popular. On the part of some of "the directors there might and probably would be objections, but "not on the part of the shareholders, and certainly not on the part "of the public." "His belief is that the greater part could be "bought by negotiation, and in the other cases by compulsory arbi- "tration." "He does not anticipate that 'the latter' would be "necessary." "His recommendation is, that the Government should "at once possess themselves of the different railways, now not less "than 54 in number, and that they should lease them to large com- "panies." "He considers that the whole of the 54 Irish railways "should be leased to three companies only." "If these lines were "let by the Government, they must be let under conditions. One "of the conditions would be a maximum fare, and another a mini- "mum accommodation." "He would place the companies to whom "he would propose to lease the lines under the control of a Govern- "ment board sitting in London." "But would give them as much "liberty as possible, after securing from them the conditions of "maximum fares and minimum service." As regards the construction "of new lines, "all the lines (now) authorized by Parliament, "whether in process of construction or not, should be completed on "the earliest day, and, were Government credit to be given, there "would be a great saving in the cost." "The lines must be com- "pleted by the companies or by the Government. It would save "great expense, and therefore be greatly to the interest of the public, "to substitute the credit of the Government for the credit of the "companies." As regards additional lines beyond those now au- thorized, "the Government, in his opinion, should only construct "new lines where the counties agree to give the land, and where a "certain amount of local subscription is offered." "He considers "that the Government should neither lose nor benefit by the rail- "ways in Ireland." "If, at the end of say five years, the traffic did "not increase to the extent expected, it would be for the Govern- "ment to increase the fares; but, in his opinion, the receipts would "more than recover themselves," and "there would be no loss from "the reduced rates and fares." "He recommends" that "what loss "should occur in the receipts in the meantime should be added to "the amount paid in the purchase of the railways," the deficit "being raised by a Government loan of $3\frac{1}{2}$ per cent."

Mr. Cawkwell, General Manager of the London and North-Western Railway, "is decidedly of opinion that the railway traffic "of Ireland has never yet been half developed." He would "sug- "gest that the whole of the railways in Ireland should be reduced "into three or four distinct systems." With concentrated manage-

ment under judicious Government control, "he has no doubt that "the shareholders would be very much benefited." "The public "would, no doubt, be also benefited." "They would be much "better served." "It would be a great improvement, a great advan- "tage to the railway system, and to the public also." "He is sure "that the traffic would be better treated and better developed than "it is now." "Anything that would alter the present system would "be a benefit." "He does not see any objection to the Government "proposing a reduction in the rates on the Irish railways, and "bearing the loss, if any, until the increase of traffic became suffi- "cient to balance it, because he does not think that there would "eventually be any loss. He believes that the traffic would work "itself round, and that there would in the end be no loss." "The "population of Ireland cannot afford to pay high fares in many "cases, and if that state of things was met by making arrangements "for market purposes, and for attending fairs, he has no doubt that "the traffic might be very largely increased." "With regard to "goods traffic, there is no doubt that a reduction in the charges in "many cases would very much increase the traffic."

This resumé of the evidence of a few leading railway authorities before the Royal Commission might be much further prolonged by the additional evidence of many other gentlemen, both railway and commercial, and all tending in the same direction—that of Government interference ; but what I have already quoted is sufficient for my case, and more than enough for the time of the meeting. I must, however, at the risk of trespassing upon your patience, add one more link to the chain of evidence. In the report given in the *Irish Times* of the speech of the Chairman of the Great Southern and Western Railway Company, at their meeting in February last, he is stated to have spoken as follows in reference to reduced rates :—"No greater fallacy can exist in the minds of any portion of the public than the idea that increased traffic can be got without increased expenditure. To my mind it has been proved to perfect demonstration that expenditure exactly increases in proportion to receipts." The first part of this statement no one will deny, but the latter part is so contrary to ordinary commercial ideas, that I cannot but think there must be some inaccuracy in the report. But, moreover, this idea if it exists, is completely disproved by the remarkable results following the reduction of Railway fares in Belgium.

Between the years 1856 and '64, Belgian Railway fares, for both goods and passengers, were reduced on an average about 28 per cent., and in the same period the traffic was doubled, and produced an increase of gross receipts of over $10\frac{1}{2}$ millions of francs, while the working expenses increased by only about $3\frac{1}{2}$ millions of francs, or, in other words, for an increased cost of only $21\frac{1}{2}$ per cent, an increased gross income was obtained of over 45 per cent.*

* Since the paragraph to which this note refers was written, I find that I am in error in stating that the reduction of 28 per cent. on railway charges in Belgium, between 1856 and 1864, was for both goods and passengers. The reduction was only on goods ; and while the weight of goods carried in 1864 was more than double what was carried in 1856, and the receipts from goods

These statistics are taken from the evidence of Professor Sullivan before the Railway Commission, and the result is shown in Table No. 7.

In the first column is shown the per-centage of reduction of fares; in the second, the amount by which the receipts would have been reduced had the traffic remained the same; but the traffic having been doubled by the stimulus of low fares, the receipts were actually increased by over ten millions, while the working expenses were only increased by a little over three millions of francs. In the meanwhile a number of new lines had been opened, and the interest on the additional capital expended for their construction is shewn in the last column, and, adding this amount to the increase of working expenses, and deducting the sum from the gross increase of receipts, we have a net gain of 5,781,000 francs.

Nothing could be more conclusive than this evidence in favour of an extensive reduction of railway charges. I may add, moreover, that, at the beginning of this year, Belgian rates were again very considerably reduced by the introduction of the sliding scale according to distance, amounting on long journeys to a reduction of more than 50 per cent.

This completes my case against our present railway system, and in favour of State intervention as regards Irish Railways, as an experiment on behalf of the United Kingdom.

It would be impossible for me within the limits of this paper to enter into detail as to the mode of carrying out such a scheme, and it has been rendered the less necessary by the fact that this branch of the subject has already been brought before you.

The Railway Act of 1844 lays down the means by which Government purchase should be carried out, but does not arrange for one eventuality which unfortunately is too much the rule in Ireland—namely, the case in which railways are paying no dividend. Lord Lucan suggests, instead of the provisions of this act, that the Government should purchase by open negotiation, and, failing this, by forced arbitration. He thinks that railway companies would be so glad to sell on fair terms, that there would be no necessity for the

increased by 52½ per cent., the receipts from passengers was increased in the same period by only 39 per cent., clearly showing the effect which the reduction of charges had in inducing a great increase of goods traffic. I am also wrong in stating that the amount in the second column of Table 7, is the amount by which the receipts would have been reduced by the reduction of rates, had the traffic remained the same. It represents the gain to the public in the year 1864 by the reduction of rates for goods; in other words, the difference between the actual receipts for goods carried in 1864, and what would have been the receipts for the conveyance of the same weight of goods at the rates of 1856. It will be seen that these inaccuracies do not at all affect the argument. Indeed, the true facts make my case rather stronger; for while the passenger traffic (in the fares for the conveyance of which no reduction was made), increased by only 39 per cent., giving a like per-centage of increase of receipts, the goods traffic, (the rates for which were so much reduced), increased by over 106 per cent. giving an increase of receipts of 52½ per cent. The result of the reduction of rates for goods has proved so satisfactory, that the Belgian Government, while still further reducing goods rates since 1864, have adopted in 1866 a very reduced scale of passenger fares.

use of compulsory powers on the part of the Government. The Government could raise the money at $3\frac{1}{2}$ per cent., and should not, in his opinion, look for any larger return than this from the railway companies to which they would lease the lines.

I think the mode proposed by Lord Lucan the most feasible, and prefer the plan of leasing the lines to one, two, or three companies for a term of years, and on certain specified conditions as to fares and accommodation, to that of direct Government management, as being more in accordance with our commercial ideas and our system of government, and more likely to suit the requirements of the country. In this case there ought to be, as suggested by Lord Lucan, a permanent Government railway board in London, which should have a certain amount of control over the lessees, and by which the rates should be revised at specified periods.

As regards passenger fares, whilst I should look forward to an ultimate reduction to the rates proposed by Mr. Galt—namely, one farthing per mile third class, one halfpenny second class, and three farthings first class, I think that the reduction proposed by Lord Lucan, as already stated, namely, to one halfpenny, three farthings, and one penny, with a corresponding reduction for goods and cattle, sufficient for the present, and I feel little doubt that five or ten years would restore the receipts to a paying level.

If this low scale of fares were adopted, I should consider any reduction for return tickets or for excursion trains quite unnecessary, and as regards third-class passengers, I should make it an essential condition that all trains that did not run an average speed, including stops, of a specified number of miles per hour, should carry third-class passengers; and by the express trains which ran beyond this speed an increased scale of fares might be charged. This is the case in Belgium, where they carry third-class passengers by many of the express trains, but charge an extra price of 20 per cent. for all classes.

You will see by Table No. 2, that the total capital expended on Irish Railways in 1864 was, in round numbers, £25,000,000 sterling. Mr. Dargan estimates that Government could purchase all our railways for about twenty-two millions, and the estimate of other railway authorities is much under this amount. As this sum could be raised by Government at about $3\frac{1}{2}$ per cent. interest, taking Mr. Dargan's estimate as correct, we find that a net income of £770,000 would pay the State. Mr. Dargan is of opinion that by amalgamated management there would be a saving of one-fifth in the working expenses, or, in other words, that the total under this head of £750,000 in Table No. 2 would be reduced to £600,000. A gross income therefore of £1,370,000 would save the State from loss, so that the rates which, as shown in the table, produced a gross income of £1,581,000 in 1864, might at once be reduced by a seventh. But as a reduction of fares would certainly induce an increase of traffic, I think that a reduction of one-fifth on the present rates might at once be adopted without resulting in loss, were the purchase by the State carried out, and the plan of a gradual reduction of rates preferred. As, however, I think nothing would give

such a stimulus to progress in this country as an extensive reduction of railway fares, I should prefer the immediate adoption of the scale of rates proposed by Lord Lucan, and if the Government would not agree to take the risk of loss, so firmly am I convinced that after a few years the great increase of traffic would bring back the receipts to a paying point, that I should be willing that a special tax should be laid on Ireland alone, to guarantee the State from loss; although I think that, as the experiment would, more or less, be for the good of the United Kingdom as a whole, it would be more just that the risk should be borne by the Imperial Exchequer.

In Belgium, Prussia, and the German States, about one-third of the whole railway system was constructed, and is managed by the State. In France railways were partly made by the State, are all under State control, and will after the lapse of a certain time become the property of the State; and in fact in all European countries railways are more or less a State institution.

I can see nothing antagonistic to liberty or contrary to sound political economy in State proprietory management or control of our railway system; and I am convinced that without State intervention our railways never can be made as advantageous to the nation as they ought to be.

I fear I have already exceeded the limits of propriety by the undue length of this paper. The subject is at once so comprehensive and so dependent upon details, that I have found further condensation impossible. Few questions of reform are of so practical a character, or so much affect the interests of every individual in the State without distinction, as that which I have advocated this evening. Few are more worthy of the consideration of this Society, which in its deliberations knows neither party, nor class, nor sect; for, in the words of Mr. Gladstone:—"I know of no "method by which a boon could be conferred on Ireland so com- "prehensive in its operation, so impartial, so free from the taint of "suspicion of ministering to any particular interest, or the views or "convenience of any particular class—one affecting the whole popu- "lation, and all conditions without distinction, and that would be so "universal in its effect, as the better development of the Railway "System in Ireland."

APPENDIX.

Since the foregoing Paper was written, I have obtained some further information respecting the condition of foreign railways and their relation to the State, chiefly extracted from the "Statesman's Yearbook"; and which I give here in the form of an Appendix, in order not to break the continuity of the original Paper, which is printed almost precisely as read.

Table No. 5, which I have added to the Statistical Tables, and give on the authority of the Report in the "Railway News" of 24th November of a Paper read by Mr. R. Dudley Baxter before the

Statistical Society of London, will show the distribution of railways in the different States of Europe in proportion to their area and population per square mile. By this table it will be seen that, next to Great Britain, Belgium has the most extended network of railways,* having, according to the "Statesman's Year-book," altogether 1,301 miles of railway in 1866, of which upwards of a third, or 467 miles, was constructed and is managed by the State; the remainder is in the hands of private companies; but as, according to the terms of the original concession of these latter, they will lapse to the State in 90 years from the period of their construction, the entire system will in process of time become national property. The average cost of the State railways amounts to £18,280 per mile, and the gross receipts were, in 1865, £2,862 per mile, producing a net income of £1,508 per mile, which would be about 8¼ per cent. on the capital. The State railways, then, of Belgium have been constructed at a moderate cost; the fares charged on them are the lowest in Europe, the gross traffic receipts almost the highest, and the net result better than that of almost any line in England; and to the credit of the management it may be mentioned that not one passenger was killed for some years; and that, of 100,000,000 passengers carried since 1835, only six were killed by accidents resulting from the service.

In France, with the exception of about 200 miles, the whole railway system is in the hands of six great companies, who have under their management about 8,000 miles of railway. With one exception, those lines all radiate from Paris to the boundaries of France. The lines were laid out under Government supervision, were partly made by Government with Government capital; and on about half the capital expended the State guarantees 4 per cent. interest, and ·65 per cent. as a sinking fund, by which the railways will all have been paid for and become State property after the lapse of 99 years from the date of the concession. They have cost, on an average, about £32,000 per mile, which is the highest average cost next to that in England. The fares are under Government control; and, according to Mr. Baxter, the per centage of gross traffic receipts on capital expended was in 1865 one per cent. higher than in England and for some years past the average dividends have been over ten per cent.

More than a third of the railways of the whole of Germany have been constructed by the different States, and pay dividends varying from 5 per cent. in Prussia to 15 per cent. in Baden. In Hanover, Baden, and Wurtemberg all the railways are State property; and in Saxony and Bavaria the greater portion, and in Prussia about one-third, of the railways are State property, and the income derived from them forms a large portion of the revenues of the different States.

As the condition of the railways of India is of particular interest, as showing the system adopted by our own Government for their

* In proportion to area.

development in that important possession of the British crown, I will quote a portion of the very interesting description of our Indian railway system given in the "Statesman's Year-book," to which I am already so much indebted for my information :—

"It was determined by the East India Government to guarantee "to the railway companies, for a term of 99 years, a certain rate of "interest (viz., 5 per cent.) upon the capital subscribed for their "undertakings; and, in order to guard against the evil effects of "failure on the part of the companies, power was reserved by the "Government to supervise and control all their proceedings by means "of an official director in England, and of officers appointed for the "purpose in India. The land required for the works connected there-"with was given, and continues to be given, by the Government, free "of expense, and the stipulated rate of interest is guaranteed to the "shareholders in every case, except that of the traffic receipts of the "line being insufficient to cover the working expenses, in which "event the deficiency is chargeable against the guaranteed interest. "Should the net receipts, on the other hand, be in excess of the sum "required to pay the amount guaranteed, the surplus is divided in "equal parts between the Government and the shareholders, until "the charge to the Government for interest in previous years, with "simple interest thereon, has been repaid, after which time the "whole of the receipts are distributed among the shareholders. The "railway companies have the power of surrendering their works, "after any portion of the line has been opened for three months, "and of receiving from the Government the money expended on the "undertaking; and, on the other hand, the Government has the "power, at the expiration of a period of 25 or 50 years from the "date of the contracts, of purchasing the railways at the mean value "of the shares for the three previous years, or of paying a propor-"tionate annuity until the end of the 99 years, when the land and "works will revert to the Government, unless the railway companies "have previously exercised their powers of surrender."

* * * *

"The total length of lines open or in course of construction by "the eight Indian railway companies is 4,944 miles," of which 3,332 miles are now open. "The total expenditure of capital on the lines "which were open, or in course of construction, amounted on May "1st, 1865, to £54,942,029." "The total amount estimated to be "required for the undertakings, as now sanctioned, will reach "£77,500,000."

"Up to the end of 1864, the Government had advanced £13,160,539 "to the railway companies for guaranteed interest, but about "£3,300,000 had been paid back out of the earnings of the rail-"ways, leaving nearly £10,000,000 still due to the Government. "The charge upon the Government was £2,567,743 in the year "1864; but the receipts from traffic which went in diminution of "this charge amounted to about £1,000,000, and in 1865 realized "£1,300,000. It is calculated that year by year the revenues will "approach nearer to the amount of the guaranteed interest, so that

" at last, the Government will not only be relieved of the annual " payment altogether, but the railways will begin to earn more than " the guaranteed rate, and discharge their debt for previous advances " out of half the excess profits above five per cent."

This satisfactory condition has been arrived at by the East Indian Railway Company, which has just declared a dividend for the past half-year of one half per cent. beyond the guaranteed five per cent., after paying back to the Government half the surplus profits.

RAILWAY STATISTICS.

I.—Comparative View of Railways in different European States.

NAME OF STATE.	Year.	Miles open.	Capital Expended.	Capital per Mile.	Traffic Receipts per Mile.	Working Expenses per Mile.	Nett Receipts per mile.	Per-centage of Net Receipts on Capital.
			£	£	£	£	£	£
France	1854	2,913	74,772,994	25,668	2,706	1,191	1,515	6·6
Austria	1856	1,586	25,876,786	16,378	2,190	1,150	1,040	6·3
Prussia	1856	2,503	35,295,043	14,101	1,877	968	909	6·2
Germany	1855	2,226	29,185,250	13,111	1,816	897	919	5·7
Belgium	1856	445	7,294,783	16,391	2,158	1,260	898	5·5
Great Britain—England	1857	6,706	263,145,238	39,275	3,161	1,564	1,597	4·1
Scotland	1857	1,243	35,084,288	28,225	2,107	941	1,166	4·1
Ireland	1857	1,070	16,760,300	15,664	1,091	465	626	4·0

2.—Statistics for Year 1864.

	Miles Open.	Total paid up Capital: Shares and Loans	Amount per Mile.	Total Working Expenses.	Total Receipts.	Net Receipts.	Per-centage on Capital.
	£	£	£	£	£	£	
England	8,890	357,833,415	40,249	13,535,813	28,667,649	15,131,836	4·23
Scotland	2,105	42,334,017	20,159	1,713,962	3,766,309	2,052,347	4·85
Ireland	1,794	25,316,006	14,168	750,530	1,581,606	831,076	3·28
United Kingdom	12,789	425,483,438	33,191	16,000,305	34,015,564	18,015,259	4·23

	Miles.	Number of Passengers.	Number per Mile.	Passenger Receipts.	Amount per Mile.	Live Stock, Goods, and Mail Receipts.	Amount per Mile.	Total Receipts per Mile.
				£	£	£	£	£
England	8,890	197,164,661	22,178	11,808,277	1,328	16,859,372	1,896	3,224
Scotland	2,105	20,205,455	9,597	1,263,295	601	2,503,014	1,192	1,793
Ireland	1,794	11,902,049	6,633	844,028	470	737,578	411	881
United Kingdom... ...	12,789	229,272,165	17,826	13,915,600	1,086	20,099,964	1,572	2,658

	Proportion per cent. of No. of Passengers.			Proportion per cent. of Receipts from Passengers.				Proportion per cent. of Total Receipts.	
	1st Class.	2nd Class.	3rd Class.	1st Class.	2nd Class.	3rd Class.	Season Tickets.	Passengers.	Goods.
England	11·90	30·27	57·83	26·00	34·62	36·49	2·89	46·28	53·72
Scotland	13·32	9.89	76·79*	25·39	15·37	56·76	2.48	37·93	62·07
Ireland	12·97	30·16	56·87	24·93	31·25	41·47	2·35	62·44	37·56
Average—United Kingdom	12·08	28·47	59·45	25·89	32·66	38·62	2·83	46·10	53·90

* Several Scotch Railways run trains with only 1st and 3rd Class Carriages, which accounts for the small proportion of 2nd Class, and the large Proportion of 3rd Class passengers in Scotland.

3.—FARE PER MILE IN DIFFERENT EUROPEAN STATES.

STATES.	1st Class.	2nd Class.	3rd Class.
	d.	d.	d.
Belgium (10 miles)	1·23	·92	·61
Belgium (50 miles)	·69	·46	·34
Belgium (90 miles)	·55	·37	·28
Wurtemberg... ...	1·30	·85	·58
Bavaria	1·31	·87	·58
Baden	1·33	·91	·58
Saxony	1·25	1·00	·77
Prussia	1·52	1·15	·76*
Hanover	1·52	1·15	·76
Switzerland	1·73	1·20	·86
Italy	1·72	1·29	·86
Holland	1·72	1·40	·86
France	1·72	1·30	·95
Austria	1·82	1·37	·91
Great Britain & Ireland	2·20	1·60	1·00

* And 4th class ·38.

4.—DENSITY OF POPULATION IN DIFFERENT EUROPEAN STATES.

STATES.	Date of Census.	Population per Square Mile.
Belgium	1863	432
England and Wales...	1861	347
Saxony	1861	328
Holland	1861	309
Great Britain & Ireland	1861	253
Baden	1861	233
Italy	1864	220
Wurtemberg	1861	219
Ireland	1861	181
France	1861	177
Prussia	1861	171
Bavaria	1861	158
Switzerland	1860	157
Austria	1857	148
Hanover	1861	127
Scotland	1861	101

5.—TABLE SHOWING THE EXTENT OF RAILWAY AS COMPARED WITH THE AREA AND POPULATION IN DIFFERENT EUROPEAN STATES IN 1864.

STATES.	Square Miles per Railway Mile.	Population per Railway Mile.
England and Wales...	6·5	2,257
Belgium	8·0	3,625
Great Britain & Ireland	9·0	2,238
Scotland	14·5	1,470
Ireland	17·1	3,260
Switzerland	19·0	3,257
Prussia and Germany (except Austria) ...	20·0	3,525
France	26·0	4,607
Holland	29·0	9,066
Italy	41·0	9,084
Austria	63·0	9,375

6.—APPROXIMATE ANALYSIS OF AVERAGE COST OF BRITISH RAILWAYS, 1857.

	Per Mile.	Per Cent.
	£	
Law and Parliamentary Expenses	2,000 or	6
Land and Compensation	7,000 or	20
Construction	17,500 or	50
Locomotives and Rolling Stock	3,000 or	9
Interest on Stock, Discounts, Bonuses, Dividends from Capital, &c.	5,500 or	15
	35,000	100

7.—RESULTS OF REDUCTION OF RAILWAY FARES IN BELGIUM, 1856 TO 1864.*

Per-centage of reduction.	Proportionate Reduction of Receipts.	Actual increase of Receipts.	Increase of Working Expenses	Five per cent. on additional outlay of Capital.
	Francs.	Francs.	Francs.	Francs.
27·729	6,670,000	10,524,000	3,189,000	1,554,000
Deduct total increased working expenditure		4,743,000		
		5,781,000	= Actual net gain.	

8.—CONDITION OF IRISH RAILWAYS, 1864.

THIRTEEN RAILWAYS paid no dividend on either all or a portion of their Preference Stock.

SEVEN RAILWAYS paid full dividends on Preference Shares, but no dividend on their Ordinary Shares.

SEVEN RAILWAYS paid a lower dividend on their Ordinary Shares than the rate on Government Funds at their present price.

SIX RAILWAYS paid a higher dividend than the Funds, but under 5 per cent.

ONE RAILWAY paid a dividend over 5 per cent.

* See Note, p. 383.

IV.—*The Application of Commercial Enterprise to the Construction of Railways.* By W. Mulholland, Esq., A.B., Barrister-at-Law.

[Read, Tuesday, 18th December, 1866.]

At a late meeting of the Society Dr. Hancock exhibited a very suggestive table, showing the unsatisfactory financial position of Irish Railways. It must have occurred to many at the time that a similar table of the English and Scotch Railways would be instructive, and enable us to see whether State interference with the Railways of Ireland was rendered necessary by any circumstances peculiar to this country, or was only an aggravated form of the general unhealthiness which affects the Railway System of the entire kingdom.

I have prepared such a table with the purpose of making it the groundwork of my remarks to you this evening.

The Irish table, you will remember, proved clearly that railways in Ireland have not on the whole been at all successful as a commercial speculation. We found that out of thirty-five railways there was only one whose shares were above par, and only six, representing in mileage but a third of the entire, paying a dividend exceeding 3 per cent; seven others paying a dividend under 3 per cent; and twenty-one paying nothing, and in various stages from approaching to actual insolvency.

The present table shows, I think, that the result is the same in England and Scotland, and that, except under certain favourable circumstances, the Railways of Great Britain have paid their projectors as badly as our own.

We see that out of more than 9,000 miles* of Railway in England considerably upwards of 1,000 miles are paying nothing, and are in financial difficulties; more than 2,000 are paying an average dividend of 2 per cent; nearly 2,000 are paying an average dividend of 4 per cent, and the remainder (considerably less than the moiety of the whole) is paying an average dividend of 6 per cent.

Thus it appears that more than half the railways of England are a losing speculation at the present moment, leaving out of the question the loss upon the minor railways which have become amalgamated with the great Companies. It is of course impossible to tabulate these last with any certainty, or within a reasonable space, but it will be found upon analysing the various amalgamated systems, that there are numberless small lines which are leased by the monster Companies at a perpetual dividend varying in different instances from 1 to 4 per cent; or which have been entirely absorbed, their shares having been exchanged for the shares of the great Companies at a large reduction on the paid-up capital. So that there has been an enormous loss upon railway enterprise which does not and cannot appear upon this table.

Again, if we look at Scotland, the same state of things appears.

* The figures in these pages and the annexed Tables are taken from the Board of Trade Returns for 1865, and the Railway Share lists issued by the London Stock Exchange.

Out of 2,200 miles of Railway, 1,000, or nearly half, are paying nothing, even to some of its preference shareholders; 300 miles are paying 1 per cent, 160 miles are paying 4 per cent, and only in the residue of 736 miles are the shares above par, so that two-thirds of the mileage of the Railways of Scotland are a complete failure as a commercial speculation.

The first thing which strikes one in glancing at these tables is the glaring inequality in the paying capabilities of the different lines. To some extent amalgamation has removed this, but it is still apparent where amalgamation is impossible. For instance, take the Great Eastern and the Lancaster and Carlisle; the one is paying nothing on its ordinary stock, and nothing even on some of its preference shares; while the other is paying 10½ per cent. The Great Western is paying only 2 per cent. the Furness and Whitehaven lines are paying 10 per cent. The cause of this might perhaps be expressed in the one word,—coal, or perhaps in the generic term minerals. It is a curious and instructive fact this, and one which we realize more and more as we study the railways of these countries, that no shareholder can look for a satisfactory dividend on his line unless its traffic in minerals is very large, and just in proportion to its mineral traffic will be its dividend. Draw a line westward from London to Bristol, and another northward from London to the Wash on the boundary of Lincolnshire, and you will cut off the whole south and extreme east of England, a district containing seventeen or eighteen counties equalling in area probably one-third of the whole of England and Wales, and possessing more than a third of the entire Railway mileage of the country—counties containing a most prosperous agricultural population, some manufactures, and possessing a wide and extensive seaboard with every advantage for shipping and fishing, but which does not contain a single coal mine; and you will also cut off a district in which the Railway dividend averages about 2 per cent, and which does not possess out of 3,200 miles a single line whose shares range higher than 11 per cent discount. Take Wales, north and south. In North Wales the Holyhead and Chester line, with all the traffic of passengers, mails, and ordinary goods from Ireland is leased by the London and North Western Railway at 2½ per cent. In South Wales collieries abound, and the lines are paying 6 to 9 per cent.

Take Scotland, and with the exception of 162 miles out of 1304, there is not a line north of Stirling paying higher than one per cent. Once the railways of Scotland cease to participate in the great carrying trade from the Scotch and north of England coal-mines to the Clyde, the dividend falls from 7 per cent. to one per cent. There appears to be only one exception to this law, if I may so call it, and that is short passenger lines which are fed from the gorged streets of a great metropolis, such as the Metropolitan and North London Railways in England, and the Dublin and Kingstown in Ireland.

It is true that the chief coal carrying railways have also a larger traffic in general merchandize than the unsuccessful lines, being the principal highways of trade of all kinds. But when we find that in the year 1865 the receipts from mineral traffic were one-third of the entire goods traffic of the railways of these countries; when we find

that on the North Eastern Railway (a fair instance of a Company combining a large general trade with a great coal traffic) considerably more than one-third of the ENTIRE receipts of the railway were derived in that year from mineral traffic; I think we may safely say that if the coal and iron trade of England and Scotland were to cease—nay even be materially lessened—every railway share in those countries would, like our own, fall below par.

It appears, then, that except in the most favourable circumstances railways are not a remunerative field for private speculation, and that their construction and management by commercial enterprise is attended with absolute loss. It is true that many railways have got into difficulties by want of prudence, such as expensive construction, or excessive competition; but, passing by the fact that these very imprudences are the result, and the inevitable result, of the commercial spirit when applied to the construction of railways, I do not think we could hope to raise the dividends of the Great Eastern or the Great Western, under the most favourable circumstances of construction and management, over 3 per cent. It is clear that this would not remunerate private investment. If, then, the commercial speculators who made these non-paying lines knew as much when they projected these undertakings as they know now, these lines would never have been made.

We should only have six miles of railway in Ireland. There would only be three lines in Scotland. There would not be a single railway in the south or east of England. The communication between England and Ireland, and England and France would be incomplete. And who knows how much the now successful lines would suffer from the absence of the unsuccessful. A great part of the traffic on the northern lines in England would never have existed but for the further ramifications of railways into the south and east, which are not self-supporting.

So that the country has become possessed of this complete and enormous system of railways by robbing one set of men and enriching another. It is vain to say that this was a speculation, and, as in all speculations, one man gains and another loses. This must mean that the supply of railways has been in excess of the demand, to the full extent of the loss on the unsuccessful lines; that railways have paid their projectors wherever they were wanted, and that they have not paid where they were not wanted. But the railways, even the worst paying railways, were wanted. They were wanted not only by the locality but wanted by the nation. Will any one say that he would wish to see in the country a mile of railway less than there is at present, having regard to the ultimate development of its resources and its permanent advance? Are not the railways, as well those that have ruined their shareholders as those which pay 10 per cent., the very breath of our commercial life? It is necessary for the general prosperity of trade that hops and wheat should be cheapened in carriage as well as coals; yet the railway which carries hops and wheat will not pay its owners, while the railway which carries coal will pay largely. Railways have done fabulous things for the possessors of coal and iron; but the increased demand for these articles has re-acted wonderfully upon

the railways, and the growing trade has repaid its benefactor tenfold. The quickened transit of passengers and letters stimulates not one trade alone but all trade, perhaps in a still greater degree than quickened transit of goods; but the lines which have rendered most service in this respect have had worse than a thankless task.

If, then, we had to make our railways over again, possessed as we are, both the State and commercial speculators, of the dearly bought experience of the last twenty years, we should stand thus: The State will see that it is necessary for rapid commercial advance and thorough development of a country's resources that there should be a complete system of railways over the country; commercial spirit will see that railways would be a paying speculation in certain favoured localities, but that in other places not so favoured by nature they would be a dead loss. If the construction of the railways be left to a fully informed commercial spirit, and a railway mania do not interfere to blind it for the advantage of the public, the result will be that railways will be constructed through mineral and manufacturing districts, and nowhere else. If railways are to be constructed elsewhere they must be paid for out of the taxes. This will be better than having our railway system incomplete, but it will certainly be attended for a long time with loss to the national exchequer; for, although Government can construct and work railways at a cheaper rate than private speculators, through obtaining its capital at lower rates of interest, yet the average returns from railways in such districts are even less than would pay the Government rate of interest; and capital could not perhaps be obtained by Government for railway purposes at so low a rate as most people think. Is there no means of possessing a perfect and self-supporting railway system? There is a fund from which the State could have recouped itself for the loss on the non-paying lines, which was lying ready to its hand, which was the sole property of the nation, but which it has handed away to private individuals: that fund is the surplus profits of the successful railways.

To see this clearly, we must obtain a clear notion as to what constitutes the difference between these two classes of railways.

A railway may be described as an instrument whereby a working capital may be employed at 50 per cent. profit. All railway accounts show this to be a uniform result, whether the line is successful or not, that the working expenses of a railway average one-half of its receipts. Although of course economy in management will not be without its effect in increasing the gross profits, yet so small a sum divided over the whole capital will produce an almost imperceptible effect on the dividend. The Great Eastern and the Great Northern, which contrast very strongly in reference to dividends, have had for the last few years almost the same proportion between working expenses and gross receipts. An instrument which makes money at 50 per cent. on its working capital will necessarily be a very costly one. It is not, however, the difference in the cost of construction which makes one railway pay better than another. The best paying lines generally cost more to construct than the worst. The grand difference between a successful

and an unsuccessful railway is the comparative extent of the field for the employment of a working capital, the comparative amount of money which can be turned over at a profit of 50 per cent.—in other words, the gross receipts.

The Great Eastern and London and North-Western Railways have about the same proportion between working expenses and gross receipts; the rate of profit on their working capital is about the same. The construction of their line cost probably the same in proportion to their respective mileage; indeed, the Great Eastern cost probably less than the London and North-Western Railway. It runs through a level country, and the land is probably not as valuable. The Great Eastern runs 700 miles, and its gross receipts are 1½ millions; the London and North-Western Railway runs upwards of 1,300 miles,—nearly double the mileage of the Great Eastern,—but its gross receipts are 5 millions. In other words, while the Great Eastern can only make 50 per cent. on 1½ millions, the London and North-Western Railway can make 50 per cent.—not on 3 millions, which would result in no dividend like the Great Eastern,—but on 5 millions.

We see, then, that the prime element which confers success on one railway enterprise more than another, is not superior skill, or energy, or labour, but peculiar advantages inherent in certain districts and conferred by nature. These are the property of no private person, unless the state chooses to allow him to appropriate them; they belong to the nation and the public; and should not be permitted to be turned to any other than national and public advantage. As various districts possess this advantage in various degrees, the more favourable districts will yield a rent to the state, to the extent in which their profits exceed the ordinary return to capital, and the state can appropriate this by competition. If the full advantages of each district could be predicted at the outset with perfect accuracy, this rent might be appropriated by the state by simply charging a fixed sum for the privilege of making a railway in a particular district; but such a foreknowledge is of course impossible; peculiar latent advantages would begin to show themselves in places where they were not at first perceived. In order, then, that the state should obtain the full benefit of the peculiar advantages to which it is entitled, it must be the landlord of the railways, with power to vary the rent as these advantages varied.

If, then, we were about constructing our railways, we should not permit private companies to seize the most favoured districts, and pocketing the profits, leave us in difficulties with the less profitable railways. Private enterprise, however, might still be our guide; but it would be kept to its proper limits, and be only a guide and not a master. When commercial instinct saw the necessity for a line of railway, it would apply to government. Government, on approval by a parliamentary committee, as at present, would construct the line, and when constructed, hand it over to the company, receiving at first nothing more than the interest on the cost of construction. At the end of a short term of 5 or 10 years, one set

of railways, those in the favoured districts, would appear to be making more than the ordinary return to capital; to these government would then charge a sum for rent, as distinguished from interest on cost of construction—a remuneration for the peculiar advantages of the district through which the railway runs. In the unfavourable districts, however, the railways would not be paying so much as the ordinary return to capital, and would be unwilling to pay the full interest on the cost of construction. Government could then, out of the revenue from the rent of the successful lines, lower the charge made for interest to the unsuccessful. In this way our railway system would have been constructed rapidly and cheaply over the whole country, with loss to nobody, but with probably an important surplus revenue to government, to be applied to further railway construction or other national purposes. Under this system, amalgamation of the managing companies would have been more easy and more complete. We should have reached the present point in railway history just as soon, without large gains to one lucky class of speculators, and large losses to others, and with the germ of a sinking fund for national purposes in the increasing dimensions of our trade. The state would be in the position of landlord of the railways, possessing a right to the surplus profits of this peculiar speculation over others, and having a right to insert in the lease covenants and conditions in favour of the public; while private enterprise would be confined to its proper sphere as capitalist farmer of the estate; rent would not as now be confounded with profits, and each would attach to its proper owner.

It is not my object to suggest what course should be now adopted by the State in dealing with the railways; neither would I be supposed to advocate the superiority of private enterprise over the State in the management of the traffic of railways when constructed. It is a question not so much of principle as of experience and information in detail; my intention was merely to point out what appears to be the true relative position of the State and private speculation in railway enterprise, if the latter be admitted at all.

But I think it will be seen to follow from these remarks that possession by the state of the soil, at least of the railways of the entire kingdom, is desirable. It is not too late partly to retrace our steps. It is true we cannot put everything into the position it would hold if a different policy had from the first been pursued in railway enterprise. In the case of the prosperous railways we must pay high to purchase back the rights we have foregone, but we will probably be able, unfortunately for the shareholders, to purchase the unsuccessful lines for less than they would have cost us to construct; and, considering the low rate at which Government can borrow money, the nation will possess the entire system of railways, at a cost which will not be greater, and will probably be less, than the gross letting value, even if the railways of Ireland are included. The average dividend on the capital expended in railway enterprise is for the entire kingdom about 4½ per cent. This would leave a considerable margin for Government, even if they paid the cost price of the Railways all over the country; and in the rapid expan-

sion of trade, of which a more enlightened management would be at once the cause and the effect, railway rents would no doubt assume a position of importance among the sources of the revenue of the country.

ENGLAND AND WALES.

	Mileage.		Dividend Half-year, ending June, 1865.	Divided Average 3 Years Previous to June, 1865.	Price of £100 of Shares, November, 1865.
			£ s. d.	£ s. d.	£ s. d.
I. Class. *Under a Receiver.*					
1. London, Chatham, and Dover	132				
		132			
II. Class. *Stand still—none.*					
III. Class. *No Dividend on some Preference Stock.*					
1. Cornwall	66				
2. Colne Valley	19		..	..	25 0 0
3. Great Eastern	741				
		826	..	..	26 5 0
IV. Class. *No Dividend on Ordinary Stock.*					
1. Cheshire Midland	20				
2. Hull and Hornsea	13				
3. Somerset and Dorset	66				
4. West Cornwall	42				
5. Norwich and Spalding	22				
6. Small Railways	39				
		202			
V. Class. *Dividend less than Funds.*					
1. Fleetwood and Preston	8				
2. Berks and Hants, Great Western ..	25		1 5 0	0 16 0	
3. South Devon	100		1 10 0	1 10 0	
4 Staines and Wokingham	30		1 15 0	1 15 0	44 0 0
5. Manchester, Sheffield, and Lincoln ..	255		1 1 6	2 3 4	45 0 0
6. Chester and Holyhead	105		2 0 0	1 17 6	52 10 0
7. Great Western	1,245		2 10 0	2 10 0	53 0 0
8. Rhymney	24		2 0 0	2 6 8	54 2 6
9. Kendal and Windermere, London and North Western Railway	10		3 0 0	3 0 0	
10. Manchester and Matlock, London and North Western Railway	12		3 0 0	3 0 0	
11. Mid. Wales	48		2 12 6	2 12 6	
12. Cambrian	132		2 0 0		
13. Brecon, Merthyr Tydvil	61		1 14 2		
14. Cockermouth and Keswick	31		2 10 0		
15. Swansea Vale	20		1 15 0		
16. Small Railways	64		1 0 0		
		2,170			
VI. Class. *Dividends less than Commercial Interest—Shares below Par.*					
1. South Eastern	297				
2. North Staffordshire	144		2 17 6	3 4 2	66 10 0
3. Wilts and Somerset, Great Western ..	30		4 0 0	3 16 8	73 10 0
4. Birkenhead, London & North Western Railway	45		4 0 0	4 0 0	80 0 0
5. Buckinghamshire, London and North Western Railway	53		4 0 0	4 0 0	
6. London and South Western	546		4 0 0	4 0 0	89 0 0
7. Llynvi and Ogmore	20		4 0 0	4 6 8	83 10 0
8. Bristol and Exeter	121		4 0 0	4 0 0	83 0 0
9 London, Brighton, and South Coast ..	275		4 10 0	4 10 0	88 0 0
10. Birmingham and Wolverhampton, London and North Western	20		4 0 0	5 2 6	89 0 0
11. Warrington and Stockport, London and North Western	11		4 0 0	4 0 0	
12. Hull and Holderness, North Eastern ..	16		4 0 0	4 0 0	
13. Nottingham & Grantham, Gt. Northern	27		4 0 0	4 0 0	
14. Birmingham and Derby, Midland ..	55		4 2 6	4 2 6	
15. Llanelly	60		4 12 6	5 2 6	94 0 0
		1,720	3 12 6		

	Mileage.		Dividend Half-year, ending June, 1866.	Divided Average of 3 Years Previous to June, 1866.	Price of £100 of original Stock, November, 1866.
			£ s. d.	£ s. d.	£ s. d.
Brought forward ..		1,720			
VII. Class. *Shares above Par.*					
1. North Eastern	1,189		5 10 0	..	107 0 0
2. Great Northern	391		5 0 0	5 6 8	116 0 0
3. London and North Western	962		6 0 0	5 18 4	118 5 0
4. North London	12		6 0 0	6 0 0	120 0 0
5. London, Tilbury, and Southend ..	44		6 0 0		
6. Monmouthshire	49		6 10 0		
7. Metropolitan	5		7 0 0	6 10 0	123 2 6
8. Midland	645		6 0 0	6 10 0	124 17 6
9. Lancashire and Yorkshire	403		6 15 0	6 0 0	125 0 0
10, Taff Vale	76		9 10 0	10 0 0	155 0 0
11. Furness and Whitehaven	35		7 5 0		
12. Preston and Wyre	28		7 0 0		
13. Maryport and Carlisle	28		9 10 0	10 0 0	
14. Furness	53		10 0 0		
15. Whitehaven Junction	13		10 0 0	10 0 0	
16. Lancaster and Carlisle	90		10 10 0	10 0 0	
17. Blyth and Tyne	36		9 15 0		180 0 0
18. Whitehaven and Egremont	10		10 0 0		208 0 0
19. Small Railways	106	4,175			
		9,225			

SCOTLAND.

	Mileage.		Dividend Half-year, June, 1866.	Dividend, Average of previous 3 years.	Price of £100 Original Stock, Nov., 1866.
			£ s. d.	£ s. d.	£ s. d.
I. Class. *Bankrupt.—none.*					
II. Class. *Stand-still—none.*					
III. Class. *No Dividend on some Preference Stock.*					
1. North British	723		..	..	36 15 0
2. Great Northern of Scotland	242		..	..	15 0 0
		967			
IV. Class. *No Dividend on Ordinary Stock.*					
1. Forth and Clyde Junction	32		..	..	47 0 0
		32			
V. Class. *Dividend less than the Funds.*					
1. Highland	242		1 0 0	2 0 0	53 0 0
2. Port Patrick (leased to Caledonian) ..	63		1 0 0	1 0 0	48 10 0
		305			
VI. Class. *Dividend less than Commercial Interest.*					
1. Scottish North-Eastern	162		4 0 0	..	..
		162			
VII. Class. *Shares above par.*					
1. Glasgow and South-Western ..	254		7 0 0	..	119 0 0
2. Caledonian	431		7 5 0	..	121 10 0
3. Deeside	32		7 10 0	..	128 0 0
4. Leven and East of Fife	19		6 0 0	..	..
		736			
		2,200			

V.—*Co-operation as a means of Improving the Condition of the Working Classes.* By James Haughton, J.P.

[Read, 22nd January, 1866.]

I APPREHEND it will be admitted by all our members that few other subjects than the one which I have chosen are more important in their nature, or more in accordance with the purposes for which our Association was founded. An improvement in the condition of our working classes claims a prominent place in our discussions; and is a subject calculated, whenever it is brought under our notice, to call forth our warmest sympathies on behalf of a large number of our fellow men, from whose labor those who are in the possession of the comforts of life derive most of their means of enjoyment; while the producers of these comforts are themselves, in too many cases, subjected to great privations, from which, under the existing relations of society, they are, by their own unaided efforts, unable to free themselves. Many of these privations are no doubt caused by their own improvidence and intemperance. Perhaps such evils have always had to be borne by large numbers, in all countries, who depend for their subsistence on their daily labor; but they are not, on that account, the more endurable; nor is it, therefore, less the duty of the intelligent portions of the community, to strive by all legitimate means to establish a better and a happier state of social existence. Whether or not the co-operative system, which, not many years since, took hold on the minds of some of the more intelligent of the working men in the United Kingdom, and which has more recently engaged the attention, and gained the active support, of some capitalists in England, be a wise means for effecting this worthy and desirable object, is now upon trial; and it is the subject to which I am desirous of drawing the attention of the members of this Society.

I believe the Dublin Statistical Society occupies a position of influence even in our Legislature, and that our responsibility to society is in proportion to the importance attached to our proceedings. If our members give their minds to an intelligent consideration of this great social question we are now about to discuss, we may, by directing public attention to those economic laws which govern commercial proceedings, prevent failures which an ignorance of those laws might cause to result from those misdirected efforts; and thus insure a continuance of their success on sounder principles, where mistakes may have been made. I say a *continuance* of success; for it is a fact which cannot be doubted by any well informed person, that very many, indeed most of the co-operative societies which have been founded in Great Britain and Ireland, (particularly in England) since the Rochdale,—or pioneer association, as it is called,—began its work, now twenty-two years ago, have been financially and morally successful, beyond all the reasonable expectations formed of them at the time they commenced their operations: successful not alone in their pecuniary results, but also in their moral results, by diffusing among those engaged in conducting them a manly feeling of self reliance, and a spirit of brotherhood and mutual

good will and forbearance, which have enabled them to surmount many of the difficulties that stood in the way of success, arising out of those jealousies and distrusts which prevent even educated men, and perhaps ignorant men, in even a higher degree, from having that confidence in one another's integrity and ability in the management of intricate affairs, which require some amount of previous knowledge to bring them to a successful issue. Ignorance was, and is no doubt, a cause of discouragement at the foundation of every society; but the commencement of them all was on a small scale, and the results have shewn that the necessary knowledge was acquired by the managers, and even by many not actively engaged in the details, more readily than was apprehended. The Store, as Mr. Pitman the editor of *The Co-operator*, has well said to me, is the people's school; and it has proved to be a very good school indeed, for an amount of intelligence and ability for management of very many of the co-operative stores has been developed, which none could have anticipated at their formation. You have all heard of the Rochdale Co-operative Society; but the wonderful results which have followed the intelligent and able management of its conductors are not so generally known; and will, I doubt not, excite your surprise. Twenty-two years ago, twenty-eight working men, subscribing one pound each, tried, as the present managers of their great establishments now inform us,—"tried to better their condition in "life by becoming their own shopkeepers." This acorn has already grown into a mighty oak tree, whose branches now spread over the whole land; many of which are annually producing rich fruits in abundance, the sweet fruits of domestic happiness in thousands of families; of a wider spread of education; of a deeper spirit of manliness and self reliance; of a stronger feeling of human brotherhood; of a more extended charity and good will; and of a more enduring knowledge that capital and labor must work in harmony together, in order to produce the best results for our race. These are some of the happy results of the formation of the Rochdale Co-operative Society, whose business operations have spread into the surprising magnitude which the following figures, taken from their Almanack of the present year, indicate:—

"We are glad to report another prosperous year in members and "capital, as well as business done. We may with truth say that we "have tided over one of the most severe panics ever known, "this being the most prosperous year of this society. In December, "1865, the cash received for goods was £196,234; in 1866, the "cash received for goods is £249,122; shewing an increase in busi-"ness of £52,888, or over one thousand pounds per week. The "capital of this society in 1865 was £78,778; in 1866 it is £99,989, "being an increase in capital over the previous year of £21,211; "the number of members in 1865 was 5,326; and in 1866 it is "6,246; thus shewing an increase of 920. Since 1861, this society "has expended on new shops in various parts of the town and "neighbourhood, nearly £7,000 to accommodate its members; this "society has in connection with the various Branches, eleven News-"rooms, which are supported from the Educational Fund. We

"have been obliged during the past year to extend our borders by "building a new Branch at Shawclough, at a cost of £900, which "has a prospect of doing a large business in the above neighbour-"hood."

Another table shows the steady progress of the society from its commencement :—

OPERATIONS OF THE ROCHDALE EQUITABLE PIONEER SOCIETY.

Year.	Members.	Funds.	Business.	Profits.
		£	£	£
1844	28	28		
1845	74	181	710	22
1846	80	252	1,146	80
1847	110	286	1,924	72
1848	140	397	2,276	117
1849	390	1,193	6,611	561
1850	600	2,299	13,179	880
1851	630	2,785	17,638	990
1852	680	3,471	16,352	1,206
1853	720	5,848	22,760	1,674
1854	900	7,172	33,364	1,763
1855	1,400	11,032	44,902	3,106
1856	1,600	12,920	63,197	3,921
1857	1,850	15,142	79,788	5,470
1858	1,950	18,160	71,680	6,284
1859	2,703	27,060	104,012	10,739
1860	3,450	37,710	152,063	15,906
1861	3,900	42,925	176,206	18,020
1862	3,501	38,465	141,074	17,564
1863	4,013	49,361	158,632	19,671
1864	4,747	62,105	174,937	22,717
1865	5,326	78,778	196,234	25,156
1866	6,246	99,989	249,122	31,931

The society is now erecting a building, of which a local journal speaks in the following terms :—

"New Central Co-operative Stores.—This large and imposing "erection is built at the junction of St. Mary's Gate and Toad-lane, "and is estimated to cost some £10,000, and to be ready for opening "about July, 1867. Next to the Town Hall, it will certainly form "the finest and most architecturally beautiful building in the town, "and will be an object of attraction as an excellent specimen of "street architecture.—*Rochdale Observer*, 29th Dec., 1866."

These figures do indeed strikingly exhibit the happy results of well conducted co-operative measures ; and they prove that co-operation is a means of improving the condition of the working classes, and, as I shall presently shew, of encreasing the gains and the happiness, too, of the capitalist.

Many others of the societies that have followed in the footsteps of the Pioneer Association have likewise had a wonderful success, and are spreading abroad an amount of comfort and industrial knowledge hitherto unknown among our working classes. Some, I may indeed say all, of them have had serious difficulties at the commence-

ment to encounter, arising from indifference, from ignorance, from the difficulty of finding suitable agents, from distrust, from jealousy; but these impediments have been surmounted where a wise and prudent management prevailed. Sometimes unreasonable expectations of speedy good results have been entertained; and some of the societies which started failed of success; partly because of ignorance in the management of such affairs; partly because of impatience; and sometimes, no doubt, from the dishonesty of agents; but this cause, I am happy to say I have been informed, is a charge that seldom has been made. The quarterly settlement of accounts, and taking of stock, prevent much mischief from arising from that source.

The Rochdale society being the first founded, and the most successful, simply from that cause, naturally engages most public attention; but many other societies are rising rapidly into great importance. All the well conducted societies have increased in number of members and in capital, from year to year. In Manchester and other places very beautiful stores have been built; Oldham affords a striking example. I annex some figures from its last report:—

OLDHAM.	1864–5.	1865–6.	Increase.	Rate per cent. of Increase
	£	£	£	
Cash Received for Goods Sold ...	60,552	80,727	20,175	33
Paid in Dividends and Interest...	6,151	9,448	3,297	53
Share Capital	20,646	28,056	7,410	48
Penny Bank Investments ...	341	646	305	89
Fixed Stock	7,254	7,305	51	...
Reduction of Fixed Stock ...	472	883	411	87
No. of Members	1,878	2,116	238	12½

The Chairman stated that 2½ per. cent. of the nett profits are devoted to educational purposes. £555 had been given for that object. This is noble conduct on the part of working men—a fine result of co-operation.

I cannot now go into many details, neither is it my wish to do so at present; my desire being to excite among our members, and among the public at large, a spirit of enquiry into the workings of these associations, so that we may be able, as opportunities arise, to act favorably on public opinion and on the Legislature where it may be necessary, on their behalf. To such of you as desire to obtain full information as to the progress of these novel institutions, I recommend *The Co-operator*, a fortnightly journal, edited by Henry Pitman, 41, John Dalton-street, Manchester (It may be had through Murray and Co. 16, Fleet-street), price 1d. From its pages an amount of information on this most important movement, which has hitherto made but little noise, but which is silently working a wondrous revolution in these lands, will be gained, such as must surprise and interest many of you.

These societies now number over 500 (I believe, several hundreds), and the immense magnitude of their business has given rise to a

Wholesale Co-operative Society in Manchester, whose transactions are also already on a very large, and yearly increasing scale as it supplies the retail establishments with most of the articles they require. And it affords evidence that earnest and honest men, who have not been educated in business habits, very soon acquire a sufficient amount of knowledge to ensure success; as the following figures will clearly evince:—

"The North of England Co-operative Wholesale Society, "53, Dantzic-street, Manchester, is a federation of retail Co-operative "societies, and was established with the object, firstly, of bringing "the producer and consumer into more immediate contact, and thus "enhance the profits of co-operation by diminishing the cost of dis-"tribution; and secondly, to protect societies in the days of their in-"fancy and inexperience, and enable them to purchase their commo-"dities as advantageously as the largest societies."

Upwards of 200 societies do their business through the wholesale.

Year.	No. of shares taken up.	Capital.	Sales.	Net Profits.
		£	£	£
1864	18,337	2,456	51,858	306
1865	24,005	7,182	120,755	1,850
1866	31,030	10,936	175,490	2,347

Before I pass away from this branch of my subject, I must ask your attention for a few minutes to the present aspect of co-operative stores in Ireland.

Co-operative stores have not yet taken any deep root in Ireland; but I have been informed that the few that are in existence are thriving concerns. The Temperance Co-operative store in Denmark Street, in our city, is steadily increasing its business; and its managers have no doubt of ultimate success. They are speaking of enlarging their concerns; and such I have learned is the present sound condition of the Bakers' Co-operative Store in High-street. The store at Inchicore has been very prosperous. The very intelligent Secretary of that Society, which has now been in existence nearly seven years, has furnished me with some statistics of progress which I am happy in bringing under your notice.

"The following will show the progress we have made:—

Sales 1st year, ending March,			1861	...	£3,514 13 11½
„ 2nd	„	„	1862	...	5,893 11 8½
„ 3rd	„	„	1863	...	6,212 10 1½
„ 4th	„	„	1864	...	7,926 3 9½
„ 5th	„	„	1865	...	8,564 19 4
„ 6th	„	„	1866	...	9,826 17 10½
					£41,938 16 9½
Sales nine months ending December,			1866		7,535 10 8
Total sales since commencement ...				...	£49,474 7 5½

Total withdrawals by members	4,263	19	7
Amount of assets, December, 1866 ...	1,357	19	9½
	£5,621	19	4½
Total deposited on shares	1,500	14	1
Net profit on the above sales	£4,121	5	3½
Expenses paid	1,350	4	6½
Allowed for depreciation of building, &c. ...	112	19	9½
Total gross profit	£5,584	9	7½

"We had about 30 members with a like number of pounds to start with, therefore we had to use great economy; we paid two shillings a week rent for the store, which was a small cottage.

"The average sales the first quarter was £38 per week; last quarter they averaged £200.

"We have now a very fine store of our own, with a long lease of the ground; four persons are employed in the store, and are constantly kept busy."

This society commenced with a capital of £30, it now has assets of over £1,357. Such success as this, and which has been principally gained from the men employed at the works of the Great Southern and Western Railway Company at their Inchicore works, is surely good evidence of the advantages accruing to our working people from co-operation. These men have an excellent reading room at the works, provided for them by the Board of Railway Directors. The number of co-operative members averages about 160. The following articles are sold in their store:—Groceries, Provisions, Butcher's Meat, Drapery and Clothing, Boots and Shoes, Coals, Ironmongery, Brushes, Baskets, Earthenware.

There are two flourishing co-operative stores at Bessbrook, near Newry, confined to the employees in Mr. Richardson's noble factory, which gives employment to some two thousand persons. The first was started in 1853, with a capital of £400 raised by 10s. shares, which has increased to £840, after paying dividends on capital of from 30 to 40 per cent. and laying by a reserve fund of £553, to meet chances of loss, as this society gives credit to purchasers. The second society was founded 1st August, 1865, with a capital of £155 in shares of 5s. This is a most interesting society, being confined to juvenile members connected with the Band of Hope. I believe all the members of both societies are teetotalers, for Mr. Richardson does not allow a public house to be opened in the town, of which he is, I apprehend, the sole proprietor; and happiness and comfort, such as are little known where these pest-houses are permitted to shed abroad their demoralizing influences, diffuse their blessings over this favored town of some 3,000 or 4,000 inhabitants. The juvenile society is also in a flourishing condition, having added in a short time £50 to its capital, after paying 20 per cent. per annum to its shareholders, and placed £23 to a reserve fund.

I regret I cannot give a more detailed account of these interesting

societies, from the statistics which have been furnished me by their managers. My time will not permit of my enlarging; but I have said enough to show you the happy results following from those well directed efforts. Drunkenness is almost unknown, crime is almost unknown and destitution is wholly unknown in this happy community. The absence of strong drink everywhere else would produce the same blessed results. Co-operation will not thoroughly fulfil its glorious mission until alcoholic liquors shall be by common consent banished from the land. To effect this object is the truest benevolence, and the surest means of improving the condition of the working classes.

I must now pass from this part of my subject, and direct your attention to a new phase of the Co-operative movement, which has arisen in England, and is yet but in its infancy, but which seems likely ere long to arrive at a healthy maturity. I refer to the union of capital with labor named "Partnerships of Industry;" which, I believe, had its origin in Messrs. Crossley's establishment in Halifax a few years ago, but which did not extend beyond it, until within the last two years; during which time a few other large employers of labor have warmly adopted the principle of the union of capital with labor, and are now bearing testimony to its good results, so that the system is likely rapidly to progress. This new co-operative idea gives to those who work for weekly wages a per-centage of the profits also; and so far as the experiment has been tried it has worked well, and proved highly advantageous and satisfactory to all parties.

I now proceed to give you a few of the evidences before me of its successful results. These I gather from *The Co-operator*, the journal already referred to—a most valuable repertory-of facts relating to the progress of co-operation in all its present interesting aspects.

I have not any particulars relative to Messrs. Crossley's works in Halifax, neither am I aware of the exact nature of their arrangement with their work-people; but I believe it gives them a per centage of the profits;* and a friend informed me a few days ago that he saw in one of our papers a statement that their last year's profits amounted to 20 per cent.

Messrs. Greening and Co. of Manchester have adopted the practice of dividing the profits of their business with their work-people. Under their auspices, a conference on the subject of "Partnerships of Industry" was held on the 19th of last May, which afforded intense pleasure to those who took part in it. A large number of their work-people attended. Thomas Hughes, Esq. M.P. presided. He throws himself heartily into the movement. The meeting was held in the Trevelyan Temperance Hotel, and the Chairman expressed his pleasure at that circumstance, as co-operation and temperance were kindred questions. He referred also to the antagonism between capital and labor, which never looked so serious as during the last two or three years; but he thought a brighter day was now approaching. Through the amendment of the Partnership Act, mas-

* I am informed that Messrs. Crossley share their profits only with those of their workmen who are shareholders in their concern.

ters were now able to give their workers a share in their profits without admitting them to a share in the management of their business. At a meeting of masters and men in Messrs. Greenings' establishment, held that morning, both masters and men agreed that a bonus out of profits should be given even to the men who were not shareholders, so that all employed in the establishment should participate in the advantages of their united labors. This evinced a good feeling on the part of those men who had invested some of their small savings in the concern. Mr. Greening stated that it was to Messrs. Briggs that the palm was due, of shewing that this system of sharing profits could be satisfactorily arranged. Messrs. Greening are engaged in the iron trade; they are manufacturers of a great variety of articles, gates, fences, wire work, etc., and they seem to have no doubt as to the successful results of the new principle they have adopted with their work-people. Messrs. Briggs, another house which has adopted this new principle, are owners of Whitwood and Methley collieries; and Mr. Archibald Briggs, one of the partners who was present at the conference, will speak for their firm.

"The history of the experiment was another instance of good "coming out of evil; for his brother was so disgusted with the coal "trade, from the difficulties caused by strikes and other misunder- "standings—the result of which was that for two years the mines "were worked at an average return of only $4\frac{1}{2}$ per cent.—that he "determined to sell the collieries. This resolve was afterwards "modified into an attempt to form a partnership with the men, so "as to induce them to work more steadily, and strive to promote "their master's good; in fact, to remove the feeling they had always "shown so strongly—that their masters were their natural enemies, "and that every penny of loss they could bring upon their masters "was a penny gained to themselves. The effect of the new mode of "working was, to show that every penny gained by the masters "would be a halfpenny gained by the men for themselves, inasmuch "as all the profit made above 10 per cent. would be divided equally "with the workpeople. The men were gradually becoming friendly "to the plan, and some of those who were bitter enemies in times "of disagreement were now fighting hardest for this just and peace- "ful principle; while others who had been notorious for their drunk- "enness and carelessness were transformed by the influence of the "share-clubs into steady and saving men. There were five of these "share-clubs into which the men paid a small sum weekly, which "would in time make them the owners of entire shares. In this "way the co-operative plan was improving the whole tone and "character of the workpeople. Some of the men who formerly spent "their spare cash—and much that they could not spare—in drink, "were now moving for a Freehold Land Society, so that they might "own a bit of land and a house of their own, which was a laudable "ambition with many colliers. Again (continued Mr. Briggs) we "have a committee of working colliers, who meet once-a-month, or "oftener, for the purpose of stating any cause of complaint, or "making any suggestions as to an improved way of working, or a

" little alteration in the management, or as to the times of stopping " for meals, so as to produce economy and convenience in the working " of the pits. In this way changes have arisen with the men them- " selves, which, though simple, have led to much greater economy " in the working. It is evident that as these men are down in the " mine every day, and have more experience than any one else of " the details of practical coal-getting, they can often suggest improve- " ments that would not perhaps occur to employers and overlookers, " and which the men would probably never take the trouble to " suggest, had they not a personal interest in the concern."

From the Chairman's address I select the following pleasing statement—he is a shareholder with Greening and Co.—" I do think " that the experience of our own company, and the experience of " Messrs. Briggs and Co., proves that the men are beginning to ap- " preciate the new position in which they are placed; that they are " doing their work better and more honestly ; that they are taking " more care of the materials entrusted to them; and that they are " beginning to see the real meaning which underlies this great ex- " periment of partnerships of industry."

Mr. Greening related the following anecdote in illustration of their views and practice :—" There is an anecdote—very popular in our " own particular trade in Manchester—illustrating this position of " ours. It is said that a smith went into a large workshop in this " city, and asked for work from the master. When asked what " wages he expected, he produced his hammer, which had a long " handle, and three notches on it; and taking hold of the hammer " with the shortest leverage, he said—'That, sir, is 28s. a-week ;' " holding the hammer with a longer leverage, he said—'That, sir, " is 30s. a-week;' and then, taking hold of the hammer's handle at " the end, so as to wield the heaviest blows, he said—'That, sir, is " 32s. a-week!' Now, we are proposing to have hammers with the " longest handles, and wielded in the most effective manner, so as to " produce the most powerful blows in our favour that we can pos- " sibly obtain ; but instead of giving the man 32s. a-week only, and " relying upon his word that he will earn it, we say to him—'If " you will strike those telling blows, and show us the expected result, " you will receive, beyond your wage remuneration, a share of the " profits.' That I call a practical measure ; there is nothing Utopian " about it."

On the 6th October last, an excursion from the "Social Science Congress" left Manchester to celebrate the opening of the "Cobden Memorial Mills," at Sabden, which are to be conducted on the principles adopted by Messrs. Greening & Co. and Messrs. Briggs & Co. Mr. Hughes, M.P. presided on this occasion also, when he delivered a most interesting address, from which I give a few extracts ; " It is " only as late as July of last year that the last Act was passed that " entirely freed co-operative effort in this country. There was, in " 1865, a short Partnership Act passed, which made it legal for em- " ployers to give a portion of their profits to their workpeople with- " out making them thereby partners, or giving them a right to in- " terfere in the management of the business. It is now competent

" for any employer to do that, without risking the success of his con-
" cern. The question now is, whether these partnerships of in-
" dustry will succeed in this country. * * * *
" Those who did not believe in co-operation have hitherto been able
" to say—"It is all very well in theory, but when it comes to prac-
" tice, you may depend upon it you will break down; and you could
" never get capitalists to embark their capital under such circum-
" stances." Until a few weeks ago, I should have had no reply to
" make to any person who argued in that way. But, my friends,
" within this last week I have had the pleasure of visiting one of a
" group of coal mines in the West Riding of Yorkshire, belonging
" to a Partnership of Industry—that of Henry Briggs and Co.,
" Limited. Four years ago there were great strikes in the coal
" trade of the West Riding, and the leader of the employers, the
" man who fought the battle of his own order most manfully, was
" Henry Briggs. The men used to say, until it became a sort of
" proverb, that the coal-owners were devils, and that Briggs was
" the prince of the devils. Mr. Briggs fought that battle as well
" as he could; but when he came to look at his books, he found
" that his large capital of £80,000 was bringing him in a contempti-
" ble return of 4 per cent. So Mr. Briggs said to his sons and
" partners—'This won't do; we had much better sell our colliery,
" ' put our money into a more profitable business, and have done
" ' with these miserable disputes. One of his sons suggested that
" ' they should have one more trial—give their men a share in the
" ' profits, and see how the collieries worked under that system.
" ' Mr. Briggs said—' Try it if you like; things cannot be worse.'
" The result was that in July, 1865, the collieries of Henry
" Briggs and Co. were converted into the first Partnership of
" Industry. We have just been holding the anniversary meet-
" ing in Leeds, to celebrate the foundation and successful work-
" ing of that concern. What has been the result of that ex-
" periment? The result has been this: that whereas only three
" years ago the interest on the capital invested in those collieries
" was only 4 per cent., in this year 17 per cent. and upwards
" has been made. Those who held shares—and it was arranged that
" workmen could take shares—received 10 per cent. as interest;
" and after that the extra profits were shared on capital, and as a
" bonus to labour, every workman being entitled to 5 per cent. on
" his earnings who had taken the trouble to get a penny book for
" the entry of his wages. The shareholders—some of them being
" workmen—got 12 per cent. in all, or three times as much as under
" the old system; while £1,800 was divided as the bonus upon la-
" bour, being distributed in proportion to the wages. And where-
" as, before the introduction of this system, there had been nothing
" but disputes between the firm and the men, since the adoption of
" the Co-operative Partnership there has not been a single quarrel;
" but the men have been thoroughly contented, having received the
" ordinary rate of wages, including an advance, and have made
" useful suggestions, and have done their work in a way that has
" resulted in these large profits which would have been impossible

" under the old system. What has been done in one place may be " done in another—and what has been done in one trade may be " done in another."

Time obliges me to omit many telling extracts from addresses made by other speakers. I am endeavouring to give you much information within the limits of half an hour, a task that I am unable to accomplish. To supply my deficiencies I must again refer you to the columns of *The Co-operator*, some copies of which I have laid on the table, or distributed to members present.

One extract from Mr. Briggs's speech I must not omit; he said:— " There was nothing, however, succeeded like success, and he thought " a bonus of £5 or £10, which many before him, had felt in their " pockets, was a proof of their success; and he would state as a " further proof of that success, that the dividend which he as a " partner had received during the last year, notwithstanding that " they had paid £1,800 as bonus to workmen, had been larger " than he had ever received from the collieries before, even in the " most prosperous years."

Professor Fawcett, M.P. and others made able speeches, which you will find in No. 100 of *The Co-operator;* and I also refer to No. 102 and 103; for I must hurry on to a conclusion.

By a Parliamentary return to June, 1865, I find that 505 Industrial and Provident Societies in England and Wales had: —

	£
Share Capital on 31st December, 1864 ...	685,072
Loan „ „ „	89,423
Cash paid for goods bought for year ending 1864	2,578,933
Cash received for goods sold	2,742,957
Profit on same	225,569
Value of assets and property of societies on 31st December, 1864	891,775

These different items would, no doubt, show a large increase in each on the two last year's business; but of these I have not seen the returns. Such immense transactions as these figures represent are well deserving the best consideration we can give to the operations of the societies engaged in them; and which are silently working great changes in the condition of large numbers of our fellow-men who live by their daily labor—changes which are improving them, elevating them, and fitting them to take a higher position, both morally and socially, in their country.

I have now, ladies and gentlemen, brought in review the three stages of this great social revolution now in operation—the Retail Co-operative stores; the Wholesale Co-operative establishments; and the union of capital and labor denominated "Partnerships of Industry." I hope the merits of each and all of them will be closely examined and criticized by you; so that if there be a good principle in them, a sound principle, calculated to improve the relations between employers and employed—which relations are not at present in a healthy state, conducive to harmony and good-

will—that they may be fostered, and their extension encouraged; so that the condition of our working-classes shall be improved thereby; and if, on the contrary, there be any principle of evil in them,—any undeveloped cancer, calculated to mar the present pleasant prospects of their warm supporters, so that their tendency be for evil and not for good,—let their further extension be discouraged, and the mischief arrested before it becomes too great for human control. There are some, I am aware, who have these apprehensions. For my own part, I see only increasing happiness from the universal adoption of these co-operative principles; and I rejoice to know that some of our best and ablest men and deepest thinkers agree with me in this respect. But let the whole matter be well canvassed and fearlessly criticized, so that the wisest judgment may be brought to bear upon it.

Co-operation is no new principle of action among men. It is only co-operation in the modes alluded to in this paper that causes any adverse criticism, such is the ordeal through which all things new must pass. Co-operation of states for mutual protection; co-operation of lawyers, of physicians, and of other professional men for protection of their interests has long existed. Why should not commercial men and their employees also co-operate *together* for good? They have long co-operated *separately* to gain their private ends, as if capital and labor were never to meet in harmony. Thus they have long injured one another; and, in so doing, disturbed the peace of the whole community. If strikes and lock-outs be put an end to by the harmonious action of "Partnerships of Industry," and that thus the bonds of brotherhood among men shall be strengthened, the blessings thereby conferred on our country will be incalculable.

I have one other phase of this great popular movement to bring under your notice; and I hope some of you will live to see it commenced, and to help in its completion.

In the year 1849 the late Mr. J. S. Buckingham, a man who had many noble ideas greatly in advance of his time, and whose friendship I had the happiness to enjoy, published a volume of 512 pages entitled, "National Evils and Practical Remedies."

His introductory chapter is entitled, "Evils of Communism, and Benefits of Association." The work is comprised in six parts, under which he classes almost all our various evils; these parts are divided into several chapters each, in which he brings forward many existing evils, and proposes his remedies for them, which he defends with much acuteness and great ability. The only part of his work with which we are now concerned is that in which he discusses the evils of competition, and the benefits of its opposite —union and co-operation.

Speaking of the benefits conferred by the limitation of the hours of labor, he remarks:—"A more just distribution of the profits of "labor is, however, of still greater importance, and is quite as attain-"able as the former, if Governments and Communities would deter-"mine on its adoption. For this purpose it might be well, first, to "enact a law by which all joint-stock or associated bodies under-

" taking large works, such as factories, mines, railroads, docks, and " other works employing large numbers of persons ,should be limited " to the division of 10 per cent. profit ; and at the end of each year " all surplus made above that amount to be divided *pro rata* among " the persons employed, as a per centage on their ordinary wages, by " which means all would have an interest in the general prosperity ; " and more contentment, as well as a higher reward, be enjoyed by " all." I do not concur with Mr. Buckingham in his recommendation to oblige capitalists by Act of Parliament to divide their profits with their work-people ; but I feel assured that their doing so voluntarily would greatly increase the happiness, and probably the fortunes also, of both parties.

Eighteen years ago, this wise statesman, for such he was—for his mind was filled with noble ideas, which in his day were deemed utopian and impracticable, but many of them have been since adopted—conceived the idea of " Partnerships of Industry," which are now being carried into operation *voluntarily* by some of the largest employers in England ; and which principle seems destined to be ere long a ruling one among the manufacturing and other trades throughout the United Kingdom.

Mr. Buckingham's grand idea,—on the realization of which he believed the greater proportion of all our crime, and the entire sum of all our destitution, would be done away with,—was a model town, in which the rich and the poor should dwell together in a style of comfort never hitherto enjoyed by any community. This model town was to contain ten thousand inhabitants, every one of whom should, by his own industry, by the fruits of previously acquired capital, be placed in the enjoyment of all the comforts, and more of all the real pleasures of life than are now afforded under the present wretched system of social existence, or rather social misery to the majority, in all our ill-constructed, badly ventilated, and dirty cities and towns.

The cost of building this model town would be about three millions of pounds, and one million more would be required to stock the large farm around it, and the manufactories, workshops, etc. for its 10,000 inhabitants.

The mode of raising this capital, the plan of the town, and its probable, or, as he believed, certain success—success both in a pecuniary and moral point of view—are detailed at length, and supported by such cogent, indeed I may say, such unanswerable, arguments, as make it highly probable that the idea will some time or other be carried out ; and it seems to me that the " Co-operative Stores" and the " Partnerships of Industry" now in operation are but the beginning of this great end,—the nucleus of this fine conception,—when men, actuated by better and kindlier feelings towards each other, will heartily unite in wise measures to banish much, if not all, the destitution and moral degradation which we see all around us ; and for the existence of which there is no necessity,—ignorance alone being the cause of them. When this ignorance shall be dispelled by the light of knowledge, which seems to be now bursting upon us, in the present efforts to secure a closer union of

the rich and the poor, wiser and nobler attempts will be made to secure for all our fellow-men the comforts of life.* Under the feeling that there is nothing wild or utopian in the plan of improving society suggested by Mr. Buckingham, and believing it quite possible of realization, through the means of the co-operative principle which has already produced happy results almost unhoped for, I have been induced thus shortly to notice the plan proposed by my deceased friend, for realizing a condition of happiness towards the securing of which all our benevolent exertions tend, but for which great purpose they have hitherto proved sadly inefficient. Some nobler efforts must be put forth, if we would accomplish all that we ought to do in the light of that Christianity which we profess to be our guide, but which has hitherto produced but little ripe fruit among mankind.

Ladies and gentlemen, my task (and it has proved a pleasant one) is now completed. I commend the whole subject to your serious consideration, and to the best attention of my fellow citizens. The condition of our working-classes needs amendment.

VI.—*Proceedings of the Statistical and Social Inquiry Society of Ireland.*

TWENTIETH SESSION.—OPENING MEETING.

[Tuesday, 27th November, 1866.]

The Society met at the Museum of Irish Industry, Stephen's-green, at eight o'clock, Sir Robert Kane, V.P., in the chair.

The Hon. Judge Longfield, President of the Society, and the following Vice-presidents, Edward Barrington, Esq., Professor Ingram, and James Haughton, Esq. were also present.

The minutes of the last meeting were read by Mr. J. Monroe, Hon. Secretary, and confirmed by the Chairman.

Mr. Molloy, Hon. Secretary, read the Report of the Council.

Sir Robert Kane, V.P., delivered the Inaugural Address.

Sir Robert Kane having vacated the chair, and the Hon. Judge Longfield having been called thereto,

Dr. Hancock, Hon. Secretary, then proposed—"That the best thanks of the Society are due, and are hereby given, to Sir Robert Kane for his very able and valuable address."

* Among these will be reckoned the Co-operative system and Teetotalism conjoined. When these fine principles really shake hands together, they will cause wealth to accumulate so rapidly that no good work will be stayed for an hour, for want of funds; for funds far in excess of all human wants will then be continually accumulating, to enlarge the sphere of human happiness. The direct expenditure on intoxicating liquors in Great Britain and Ireland is, I believe, much over one hundred millions of pounds per annum. The indirect loss to the nation, in many ways, amounts to quite as large a sum in addition. Co-operation will yet teach men a wise application of these mighty savings.

SECOND MEETING.

[Tuesday, 18th December, 1866.]

The Society met at eight o'clock, at 35, Molesworth-street, Hon. Judge Longfield, President, in the chair.

Mr. Joseph T. Pim read a paper on "The Condition of our Railways considered with reference to their Purchase by the State.

Mr. Mulholland read a paper on "The application of Commercial Enterprise to the Construction of Railways."

The ballot having been examined the following gentlemen were declared to be duly elected members of the Society:—Edward Francis Cahill, Esq.; Valentine J. Coppinger, Esq., Barrister-at-law; William Eykelbosch, Esq.; Francis Nolan, Esq., Barrister-at-law; Robert O'Maley, Esq., Barrister-at-law; Henry Robert Perry, Esq.

THIRD MEETING.

[Tuesday, 22nd January, 1867.]

The Society met, Dr. Hancock in the chair.

Mr. James Haughton, V.P., read a paper on "Co-operation."

Mr. R. O'Maley read a paper on "Co-operative Societies."

On the motion of Mr. Molloy, seconded by Alderman Gregg, Mr. Haslam and Professor Slattery were elected auditors.

FOURTH MEETING.

[Tuesday, 5th February, 1867.

The Society met at eight o'clock, at 35, Molesworth-street, Henry Dix Hutton, Esq. in the chair.

Mr. Monroe read a paper "On Friendly Societies and Government Annuities."

Mr. M'Kane read a paper on "The Supply of Coal and the National Debt."

STATISTICAL AND SOCIAL INQUIRY

Society of Ireland.

The object of the Society is the promotion of the study of Statistics, Jurisprudence, and Social and Economic Science. The meetings are held in each month, from November to June, inclusive, at 8 P.M. The business is divided into the following departments :—

I. Jurisprudence and the Amendment of the Law, including the subjects of the Punishment and Reformation of Criminals ;

II. Social Science, including Education ; and Political Economy, including the principles of Trade and Commerce ;

III. Public Health and Sanitary Reform ;

and is transacted by members reading at the meetings of the Society written communications, in the discussion of the same, and the publication of the proceedings in such form as the Council may approve.

No communication is read unless the Secretaries, or two of them, certify that they consider it in accordance with the rules and objects of the Society. The Council thus sanction only the general scope of the papers ; but for any particular opinion, representation of facts, or train of reasoning in a paper or report the author is alone responsible. The reading of each paper, unless by express permission of the Council previously obtained, is limited to *half an hour*.

Any communication intended to be read to the Society, should be sent to one of the Honorary Secretaries, at least one week before the days of Council meetings.

Proposals of candidate members should be sent to the Secretaries at least a *fortnight* before the meeting.

The subscription to the Society is *one pound* per annum, for *members*. Ladies, and any other persons resident beyond fifteen miles from Dublin, are admissible as *associates* at a subscription of *ten shillings*.

All communications to be addressed to the *Honorary Secretaries*,

W. Neilson Hancock, LL.D.,
64, Upper Gardiner-street ;

Constantine Molloy, Esq.,
62, Lower Gardiner-street ;

John Monroe, Esq.,
47, Lower Gardiner-street.

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